



# COURSE INFORMATION & REQUIRED MATERIALS

## Course Plan

FSTEP

**Course:** Driver/Operator: Aerial/Tiller Truck Operations (2012)  
**Hours:** 40  
 17:00 hours instruction; 20:00 hours practical application, 3:00 hours testing  
**Designed For:** Firefighters assigned to aerial/tiller apparatus  
**Description:** This course is designed for the driver/operator responsible for operating fire apparatus equipped with an aerial device. Topics include inspecting, maintaining, and testing of aerial devices. Practical application requires driving an aerial apparatus including tiller operations, positioning and stabilizing the apparatus, and operating the aerial device.  
**Prerequisites:** Fire Apparatus Driver/Operator 1A  
**Certification:** None  
**Standard:** 80% on summative exam  
 Driving and Practical Exercise: the standard is set by Authority Having Jurisdiction (AHJ).  
**Max. Class Size:** 30  
**Restrictions:** This course requires a site with adequate materials and equipment to deliver the training according to the course plan.

REQUIRED STUDENT MATERIALS	EDITION	VENDORS
▪ Aerial Apparatus Driver/Operator Handbook	Second	CFCA or FPP
▪ California Commercial Driver Handbook	Second	CFCA or FPP
▪ Manufacturer's Specifications		

REQUIRED INSTRUCTOR MATERIALS	EDITION	VENDORS
▪ Aerial Apparatus Driver/Operator Handbook	Second	CFCA or FPP
▪ Aerial Apparatus Driver/Operator Instructor Resource Kit	Second	CFCA or FPP
▪ California Commercial Driver Handbook	Current	DMV
▪ California Vehicle Code	Current	DMV
▪ Title 49 CFR Transportation	2001	USGPO
▪ Manufacturer's Specifications		

VENDORS		
CFCA	California Fire Chief's Association Bookstore (800-733-2314)	<a href="http://www.calchiefs.org/">http://www.calchiefs.org/</a>
DMV	Department of Motor Vehicles	<a href="http://apps.dmv.ca.gov/pubs/hdbk/driver_handbook_toc.htm">http://apps.dmv.ca.gov/pubs/hdbk/driver_handbook_toc.htm</a>
FPP	Fire Protection Publications (800-654-4055)	<a href="https://shop.ifsta.org/">https://shop.ifsta.org/</a>
USGPO	U. S. Government Printing Office	<a href="http://www.gpo.gov/">http://www.gpo.gov/</a>

### DRIVER/OPERATOR: AERIAL/TILLER TRUCK OPERATIONS COURSE PLAN

#### Unit 1: Course Introduction

Topic 1-1: Orientation and Administration..... 0:30

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to identify the classroom and facility requirements along with the course completion requirements.

Enabling Learning Objectives (ELO):

1. Identify facility and classroom requirements
  - Start and end times
  - Breaks
  - Restrooms



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- Food locations
  - Smoking locations
  - Emergency procedures
  - Electronic devices
  - Special needs and accommodations
  - Other requirements
2. Review the course syllabus
- Course objectives
  - Calendar of events
  - Course requirements
  - Student evaluation process (80% is required on the summative test)
  - Assignments and activities
  - Required student resources
  - Class participation requirements

#### Discussion Questions:

1. What are formative and summative tests?

#### Activities:

1. Complete all required registration and enrollment forms

#### Unit 2: Inspections, Tests, and Servicing Functions

Topic 2-1: Basic Inspection Requirements for Aerial and Tillers ..... 2:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to describe and demonstrate the inspection requirements of aerial devices including a basic pretrip inspection, inspection of the cable, hydraulic, slides and roller, stabilizing, safety breathing air and communication systems and be able to identify the out of service criteria for aerials and tiller apparatus.

#### Enabling Learning Objectives (ELO):

1. Review a basic pretrip inspection
  - Battery(ies)
  - Braking
  - Cooling
  - Electrical
  - Fuel
  - Hydraulic
  - Oil/lubrication
  - Tires/rims
  - Steering
  - Belts
  - Others specific to DOT/DMV laws



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2. Describe the specific inspection requirements for the different systems on aerial device
  - Cables
  - Aerial hydraulics
  - Slides and Rollers
  - Stabilizing devices
  - Aerial safety devices
  - Breathing air
  - Communications
3. Describe the specific inspection requirements for a tiller apparatus
  - Steering system
  - Brakes
  - Trailer
  - Lubrication
4. Identify out of service criteria for an aerial/tiller apparatus
5. Demonstrate a pretrip inspection of an aerial/tiller apparatus

Discussion Questions:

1. How often must pretrip inspections be conducted?
2. What are the main systems of an aerial device that need to be inspected?
3. What may place an aerial device out of service according to NFPA?

Activities:

1. Pretrip inspection on an aerial/tiller apparatus

Topic 2-2: Test Requirements for Aerial and Tillers..... 1:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to describe and demonstrate the test requirements of aerial devices including safety device for lower the aerial device without power.

Enabling Learning Objectives (ELO):

1. Describe the various tests required for aerial devices
2. Demonstrate the emergency operations of an aerial device

Discussion Questions:

1. What are the different types of tests that need to be performed on an aerial device?

Activities:

1. Perform an emergency lower of an aerial device without power

Topic 2-3: Servicing of Aerial and Tillers Apparatus ..... 1:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to describe and demonstrate the servicing requirements of aerial devices including proper lubrication of the aerial and associated equipment

Enabling Learning Objectives (ELO):

1. Identify the service requirements for an aerial device
  - Intervals



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- Processes
  - Documentation
2. Demonstrate the servicing of an aerial device based on manufacturer’s recommendations

Discussion Questions:

1. How often should an aerial be serviced?

Activities:

1. Perform a service on an aerial device

#### Unit 3: Review of Driver Operator Responsibilities

Topic 3-1: California Vehicle Codes..... 0:30

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to describe the laws associated with the operation of emergency vehicle.

Enabling Learning Objectives (ELO):

1. Describe the California Vehicle Code (CVC) sections associated with the operation of emergency vehicles
  - §65
  - §130
  - §21055 and §21056
  - Driving under the influence
2. Describe the CVC sections associated with liabilities
  - §17001
  - §17002
  - §17003
3. Define the minimum standards for a driver’s license

Discussion Questions:

1. How does the CVC affect the operation of emergency vehicles?
2. What type of liability does a fire department assume?
3. What license is required to operate an emergency vehicle in California?

Activities:

1. To be determined by the instructor

Topic 3-2: Driver’s Responsibilities ..... 1:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to describe the responsibilities associated with the operation of an aerial/tiller apparatus.

Enabling Learning Objectives (ELO):

1. List expectations of emergency vehicle operator
  - Safety of crew
  - Safety of citizens
2. Describe the authority having jurisdiction (AHJ) policies and procedures for the operation of



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an aerial/tiller

3. List the National Fire Protection Association (NFPA) standards that are relevant to emergency vehicle operations
  - 1002
  - 1451
  - 1500
  - 1915
4. Describe the requirements of Title 49 CFR on a driver's license

Discussion Questions:

1. How does the CVC affect the operation of emergency vehicles?
2. What type of liability does a fire department assume?

Activities:

1. To be determined by the instructor

#### Unit 4: Operation of an Aerial/Tiller Fire Apparatus

Topic 4-1: Operating and Control of Aerial/Tiller Fire Apparatus..... 2:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to identify and describe the characteristic of defensive driving, the principles of tiller operations, what effects vehicle control, how to communicate between the tiller and driver and the principles of driving at night and in adverse weather conditions.

Enabling Learning Objectives (ELO):

1. Define the characteristics of a defensive driver
2. Identify the principles of tiller operations
3. Describe the effects on vehicle control of general steering reaction.
  - Momentum
  - Inertia
  - Centrifugal force
  - Weight transfer
  - Steering methods
  - Driving zones
  - Vehicle control
4. Describe the methods of communication between the driver and the tiller position
5. Describe the methods used to negotiate intersection
6. Identify the principle of driving at night and in adverse weather conditions
7. Describe the manufactures operational limitation of the apparatus.

Discussion Questions:

1. What are the characteristics of a defensive driver?
2. What are the basic principles of steering control in a tiller?

Activities:



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1. To be determined by the instructor

Topic 4-2: Operating Aerial and Tiller Apparatus ..... 10:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to operate and aerial or aerial truck with a tiller through practical driving exercises as well as on a public roadway not striking the vehicle or obstructions.

Enabling Learning Objectives (ELO):

1. Operate aerial apparatus through the practical driving exercises as specified in §4.3.2 through §4.3.5 of NFPA 1002 current edition
  - Serpentine
  - Ally Dock
  - Close maneuver turn around
  - Diminishing clearance
  - Station Backing
2. Operate aerial apparatus on a public way meeting the specific maneuvers as identify in §4.3.1 of NFPA 1002
  - Refer to standard for description of maneuvers

Discussion Questions:

1. What are the five practical driving exercises?

Activities:

1. Operate an aerial apparatus through the practical driving exercises as identified in §4.3.2 through §4.3.5, so that each exercise is performed without striking the vehicle or obstructions
2. Drive apparatus on a public way meeting the requirements of §4.3.1 maneuvers
  - Note: This activity is completed outside of the scheduled class time

#### Unit 5: Aerial Device Operations

Topic 5-1: Stabilizing Aerial Apparatus ..... 1:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to describe and operate an aerial apparatus stabilization system.

Enabling Learning Objectives (ELO):

1. Describe the hydraulic system
  - Pump
  - Pressure relief
  - Tank
  - Operating controls
  - Back-up system
  - Other requirements
2. Describe the manufactures recommendation for stabilization



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3. Describe the effects of topography and ground conditions on stabilization
4. Operate the stabilization system creating a stable platform for operating the aerial device

Discussion Questions:

1. How is the power transferred to the hydraulic system?
2. When stabilizing an aerial what ground condition should be observed?

Activities:

1. Students will demonstrate the operation of the hydraulic stabilization systems providing for a stable platform for the operation of the aerial device.

#### Topic 5-2: Maneuvering and Positioning an Aerial Device ..... 4:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to describe and operate an aerial apparatus stabilization system.

Enabling Learning Objectives (ELO):

1. Describe the safe operating limits of a given aerial device
  - Angle of inclination
  - Maximum tip loads
  - Angle from chassis axis
  - Reach
2. Describe the gauges and operating controls of the aerial device
3. Describe the emergency operating system
4. Identify the electrical and communication systems
5. Describe the manual rotation and lower systems
6. Describe the safety override and the hazards of using them.
7. Describe the aerial device safety
  - Locking system
  - Cable system
  - Operation near electrical hazards
8. Describe the procedures for bedding the aerial device

Discussion Questions:

1. What are the emergency operating systems on an aerial device?
2. What kinds of electrical systems are on aerial devices?

Activities:

1. To be determined by the instructor

#### Topic 5-3: Operating the Aerial Device ..... 10:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able operate the aerial device maneuvering it from each control station given an incident location.

Enabling Learning Objectives (ELO):

1. Demonstrate the operation of the aerial device
2. Demonstrate bedding the aerial device

Discussion Questions:



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1. What is the process for raising an aerial device?
2. What are your concerns when operating near a structure?

Activities:

1. Raise, rotate, extend, and position the aerial device to a specific location
2. Lock, unlock retract, lower, and bed an aerial device

#### Unit 6: Apparatus Placement

Topic 6-1: General Apparatus Placement ..... 1:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to identify the general apparatus placement at the various types of emergencies.

Enabling Learning Objectives (ELO):

1. Identify the considerations for apparatus placement at structure fires
2. Identify the consideration for apparatus placement at a rescue
3. Identify the consideration for placement at other types of emergencies

Discussion Questions:

1. What are your considerations when placing an aerial apparatus at the scene of a structure fire?
2. What are tactical priorities that may determine apparatus placement?

Activities:

1. To be determined by the instructor

Topic 6-2: Apparatus Placement for use of an Elevated Master Stream..... 3:00

Terminal Learning Objective (TLO): At the end of this topic, the student will be able to deploy and operate an elevated master stream and flow the desired amount of water at an incident.

Enabling Learning Objectives (ELO):

1. Identify the nozzle reactions
2. Identify the range of operation
3. Identify the weight limitations when operating with an elevated master stream
4. Demonstrate deploying and connecting a water supply to a master stream device
5. Operate an elevated master stream manually or remotely

Discussion Questions:

1. What are your considerations when operating an elevated master stream device?
2. What are tactical priorities that may determine apparatus placement when using an elevated master stream?

Activities:

1. Place an elevated master stream into operations

**Course Hours..... 40:00**