Date: January 12, 2018

To: Ronny J. Coleman, Chairman
State Training and Education Advisory Committee
State Fire Training

From: Joe Bunn, Fire Service Training Specialist III

SUBJECT/AGENDA ACTION ITEM: Fire Apparatus Driver/Operator – Aircraft Rescue and Firefighting Apparatus (ARFF) Curriculum

Recommended Actions: Information/Discussion

Background Information:

After Analysis of the entire State Fire Training (SFT) Chief Officer Certification Training Standards in 2009, the review Cadre recommended that three specific levels of Chief Officer certification be developed. STEAC and the State Board of Fire Services (SBFS) approved this recommendation. This recommendation was based on an analysis of the National Professional Development Model, National Fire Protection Association’s Standard 1021, the National Fire Academy’s Fire and Emergency Services in Higher Education (FESHE) Professional Development Model, the Fire Chief’s Development Handbook of the International Association of Fire Chiefs (IAFC), and Chief Fire Officer Credentialing guidelines of the Center of Public Safety of Excellence. In addition, the existing State Fire Training (SFT) Fire Officer, Chief Officer and Fire Chief certification tracks were analyzed. Since that time other Certification Courses have been developed utilizing these same standards for development.

In the early months of 2016, SFT established priorities to update and develop new curricula. After the approval of SFT staff, task orders were developed for all the new curricula. Cadre leads were assigned and development and validation cadres formed for all the new certification tracks. The development of all materials were established and completed through the ongoing contract with Sacramento State University.

In addition, during the process of moving numerous Certification Training Standards through the system a discussion developed around the certification process. When working with NFPA having identified the Job Performance Requirements and that there will be a greater emphasis placed on the demonstration of proficiency. The changes in curricula hours for didactic instruction it was determined that SFT. The depth of the JPR’s determined this outcome regardless of the curriculum.

Another benefit for the purposes of updating future curricula in utilizing NFPA standards as the bloodline updating can be as simple as editorial or just adding any changes in the JPR’s
themselves to keep curriculums. This insures that on an ongoing basis the curriculum will be current and represents the latest in industry standards. Accordingly, the classes were identified with cadre leads assigned and an overview of those classes was presented to STEAC as an informational only process.

Again, a designated cadre of experienced ARFF Driver Operators and others with specific background in ARFF operations were selected from various departments and backgrounds. The mission was to create a new Driver/Operator course for Aircraft Rescue and Firefighting Apparatus. This course was approved unanimously by STEAC in July of 2016.

**Cadre Leadership**

Joe Bunn, Fire Training Specialist III, Alicia Hamilton, Cadre Editor, Sacramento State

**Development Cadre Members**

Robert Bonin, Fire Captain, NASA Ames Fire Department, Dave Cruz, Fire Captain, Monterey City Fire Department, Dana Larsen, Fire Engineer (Retired), Los Angeles City Fire Department, Mark Gavie, Fire Captain, CAL FIRE

The development of the Course Plans required the development of a Certification Training Standards (CTS) for this course. Terminal Learning Objectives are established from the Job Performance Requirements (JPR’S) contained in the NFPA Standard 1002, 2014 edition, Standard for Fire Apparatus Driver/Operator Professional Qualifications, Chapter 9, Aircraft Rescue and Firefighting Apparatus. In this case, several NFPA standards were utilized. The majority of the TLO’s and the supporting Enabling Learning Objectives (ELO’s) were developed from NFPA 1002, 2017 edition, Standard for Fire Apparatus Driver/Operator Professional Qualifications, Chapter 9, Aircraft Rescue and Firefighting Apparatus. The other NFPA Standard that was utilized was NFPA 1003 Standard for Airport Firefighter Professional Qualifications, 2015 edition and the FAA part 139 requirements among others that aided as support documents while establishing the Course Plans. The development of the material required one multi-day session.

The break down of the 88-hour Certification course is as follows:

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The development cadre insisted that the standards for the instructors have a strong experience and background in ARFF operations at all levels to facilitate this course and it’s content. It is worth mentioning the development cadre was very committed to the content and professional approach to this course.

**Analysis/Summary of Issue:**

Following is an analysis of a new certification course that was developed to fit inline with the Driver Operator courses now offered at SFT at the request of the Metro Chiefs through STEAC.

1. This class was developed consistent with the existing SFT courses. It would be useful for Professionals and Volunteers alike, if in there City, County, State, Fire District that had an Airport within their area of responsibility and were required to provide safety services to that Airport Facility.
2. The course developed has stopped at the development stage for a number of reasons that will be discussed here. Analyzing this course and how it developed the hours of instruction, the site necessary to instruct the course, the equipment including a aircraft or mock up of an aircraft in the proper environment for fires for wheel, engine, interior, cockpit, electrical hazard and cargo required to instruct this course utilizing vehicle operations and tactics, and hand line operations and tactics. The last portion to this is the EVOC (Emergency Vehicle Operator’s Course), which includes off-road operations, high-speed maneuvering, safe handling, nozzle penetration work and fire ground mass application. All of this meeting the FAA part 139 requirements makes it a course that few would or could attend. Again, it would be difficult for SFT to provide and support such a robust curriculum.

3. In addition, all topics for fire operations must meet the Federal Aviation Administration Part 139.319 (i)(2) and the State of California Fire Training Control 5. Presently, the only facility that meets or exceeds these standards, has the facilities, apparatus, equipment and instructors to provide this level of instruction is the San Bernardino Regional Training Center (SBRTC) in San Bernardino County in California. The cost at the SBRTC varies based on the need for ARFF certification for an ARFF firefighter, which is a cost of $1,400 per student to a ARFF basic certification course meeting the requirement outlined above for Index burns A-B, $995.00 and Index burns C-D-E at a cost of $1,250.00. The firefighter course, which is a 120 hours, is required prior to attending the driver/operator course and other required prerequisites. It also is worth mentioning that several metro fire departments sent that personnel to the Salt Lake City Airport Training Facility to fulfill the Fire Control Course to meet the FAA requirement and NFPA 1002. Again, making note of the limited access to this training in the State of California. The above information was provided to present the financial commitment needed to support and maintain this course for any organization.

4. Presently, all associated materials have been developed in draft form for STEAC to review and make comments for further recommendations. As the Cadre Lead on this project and realizing the scope of work and instruction for this course it was decided to present the work to STEAC for further comment and leadership. The next phase in the development of this course, if moved forward would be the validation process. Presently, approximately 20 to 24 thousand dollars is in the present budget to complete this project. In addition, it was brought to my attention as a cadre lead that the real need, which also was discussed by the Metro Chiefs, is to develop a course that may not be a certification, but an FSTEP course by design. This course would be developed for the first responder into an airport event that would require them to support at ARFF operations as directed by the Incident Commander.

5. Based on analysis and need the funds mentioned above required for the validation of the Fire Apparatus Driver/Operator – Aircraft Rescue and Firefighting Apparatus course may be better spent and in the best interest of SFT and the Fire Service Community to utilize those funds on the development of a FSTEP course that fulfills the need for all fire departments.

In addition, SFT is looking to STEAC for direction to either move forward with the present certification course or to develop a FSTEP course that would support the Driver/Operator Certification for the first responder into an ARFF operations event. Further documents will be developed and presented for review based on direction by STEAC.
This CTS guide utilizes NFPA 1002 *Standard for Fire Apparatus Driver/Operator Professional Qualifications* (2014) to provide the qualifications for State Fire Training’s Fire Apparatus Driver/Operator – Aircraft Rescue and Firefighting Apparatus certification.

State Fire Training coordinated the development of this CTS guide. Before its publication, the Statewide Training and Education Advisory Committee (STEAC) and the State Board of Fire Services (SBFS) recommended this CTS guide for adoption by the Office of the State Fire Marshal (OSFM).
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State Fire Training

Mission
To enable the California Fire Service to safely protect life and property through education, training, and certification.

The California Fire Services Training and Education System
The California Fire Service Training and Education System (CFSTES) was established to provide a single statewide focus for fire service training in California. CFSTES is a composite of all the elements that contribute to the development, delivery, and administration of training for the California fire service. The authority for the central coordination of this effort is vested in the Training Division of the California State Fire Marshal's Office with oversight provided by the State Board of Fire Services.

CFSTES facilitates, coordinates, and assists in the development and implementation of standards and certification for the California fire service. CFSTES:
1. Administers the California Fire Academy System
2. Provides accredited courses leading to certification and approved standardized training programs for local and regional delivery
3. Administers the national accreditation process in California
4. Publishes certification training standards, course plans, and a certification task book for each certified level in the California fire service

CFSTES is a fire service system developed by the fire service, for the fire service. It is only as successful and effective as the people involved in it.
Acknowledgments

State Fire Training appreciates the hard work and accomplishments of those who built the solid foundation on which this program continues to grow.

State Fire Training gratefully acknowledges the following individuals and organizations for their diligent efforts and contributions that made the development and publication of this document possible.

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Ken Pimlott
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**Partners**

State Fire Training also extends special acknowledgement and appreciation to the Conference and Training Services Unit with the College of Continuing Education at California State University, Sacramento, for its ongoing meeting logistics and curriculum development support, innovative ideas, and forward-thinking services. This collaboration is made possible through an interagency agreement between CAL FIRE and Sacramento State.
How to Read a CTS Guide

State Fire Training develops a Certification Training Standards (CTS) Guide for a variety of job functions in the fire service such as firefighter, driver/operator, fire instructor, and company officer. The CTS guide lists the requisite knowledge and skills and the job performance requirements a person is expected to complete in order to become certified in a specific function. CTS guides are appropriate for fire service personnel and individuals in related occupations pursuing State Fire Training certification.

Each CTS guide serves as a foundation for the certification programs recommended for adoption by the Office of the State Fire Marshal. Any certification program must be based on job-related knowledge and measurable performance standards. To master the knowledge and skills needed for specialized operations, individuals will require additional training to augment the performance standards included in the CTS guide.

Within the CTS guide, it is impossible to capture the different policies and procedures of each organization in the California fire service. Individuals aspiring to meet State Fire Training’s certification training standards must do so in accordance with the codes, standards, regulations, policies, and standard operating procedures applicable within their own departments or jurisdictions.

Format

Each certification training standard included in the CTS guide includes the following:

Section Heading
The section heading describes a general category for a group of training standards. For example, the Fire Marshal CTS includes the following sections: Administration, Risk Management, Community Relations, Professional Development, Regulatory Programs, Fire and Life Safety, and Investigation. Each section contains one or more individual training standards.

Training Standard Title
The training standard title provides a general description of the performance requirement contained within the standard.

Authority
The CTS guide references each standard with one or more paragraphs of the corresponding National Fire Protection Association (NFPA) Professional Qualifications. This ensures that each fire service function within California's certification system meets or exceeds NFPA standards.
When California requirements exceed the NFPA standard, the CTS guide cites the Office of the State Fire Marshal as the authority and prints the corresponding information in *italics*.

**Given**
This section lists the objects, equipment, materials, or facilities an individual needs in order to acquire the requisite knowledge and skills or to accomplish the job performance requirement(s) within a training standard.

**Requisite Knowledge and Skills**
This section lists the knowledge and skills that an individual must acquire in order to accomplish the job performance requirement(s) within a training standard.

This section does not include NFPA requisite knowledge or skills that are too general to teach or that individuals should develop through life experiences. For example, a training standard would not list “communicate orally and in writing” or “ability to relate interpersonally” unless they specifically apply to a job performance requirement about acquiring communication skills or developing interpersonal relationships.

**Job Performance Requirements**
This section includes one or more written statements that describe a specific job-related task and define measurable or observable outcomes. After an individual completes all coursework and requisite requirements, the certification task book process verifies completion of job performance requirements.

**Content**
In addition to the individual certification training standards, the CTS guide also includes State Fire Training Revisions and Errata pages.

**State Fire Training Content**
Located at the back of the CTS guide, this table documents any significant revisions made by State Fire Training to the NFPA standards in the development of this CTS guide. This table is used to justify content additions and advise the course plan development team.

**Errata**
Located at the back of the CTS guide, this page documents any changes made to the CTS guide outside of the five-year NFPA revision cycle.
Fire Apparatus Driver/Operator – Aircraft Rescue and Firefighting Apparatus

Section 1: Preventive Maintenance

1-1: Perform and Document Routine Tests, Inspections, and Servicing Functions Unique to an Aircraft Rescue and Firefighting Apparatus (ARFF)

Authority
  • Paragraph 9.1.1
Office of the State Fire Marshal

Given
1. ARFF apparatus
2. Tools and equipment
3. Manufacturer’s specifications and requirements
4. Maintenance and inspection forms
5. Policies and procedures of the jurisdiction

Requisite Knowledge and Skills
1. Explain manufacturer’s specifications and requirements
2. Discuss the policies and procedures of the jurisdiction, including documentation requirements

Requisite Skills
1. Use tools and equipment
2. Recognize system problems and out-of service criteria
3. Correct any deficiency noted according to policies and procedures and/or manufacturer specifications and requirements

Job Performance Requirements
Perform and document routine tests, inspections, and servicing functions on the systems and components unique to ARFF apparatus, in addition to those in NFPA 1002 Paragraph 4.2.1, to verify their operational status.

NFPA: Perform the routine tests, inspections, and servicing functions specified in the following list in addition to those in 4.2.1, given an ARFF vehicle and the manufacturer’s servicing, testing,
and inspection criteria, and policies and procedures of the jurisdiction, so that the operational status of the vehicle is verified:
(1)*Agent dispensing systems
(2)*Secondary extinguishing systems
(3) Vehicle-mounted breathing air systems

A.4.2.1 Routine tests, inspections, and servicing functions should be performed on a daily, weekly, monthly, or other periodic basis as determined by departmental policy. The specifications provided by the manufacturer for these functions should be followed.
Section 2: Operations

2-1: Operate an ARFF Apparatus on an Airport Surface during Normal Conditions

Authority
- Paragraph 9.1.2
Office of the State Fire Marshal

Given
1. ARFF apparatus
2. Applicable laws and regulations
3. Policies and procedures of the jurisdiction
4. Predetermined route on an airport surface including operation in all aircraft movement areas that incorporates the maneuvers and features expected during normal operations

Requisite Knowledge
1. Explain the effects on vehicle control of liquid surge, braking reaction time, and load factors
2. Explain the effects of high center of gravity on roll-over potential, general steering reactions, speed, and centrifugal force
3. Discuss applicable laws and regulations
4. Describe the principles of skid avoidance, night driving, shifting, and gear patterns
5. Discuss negotiating intersections, railroad crossings, and bridges
6. Describe weight and height limitations for both roads and bridges
7. Describe automotive gauges and their operation
8. Explain operational limits
9. Verb hazards of driving through smoke
10. Verb control tower light signals
11. Verb airfield markings
12. Verb runway and taxiway designations
13. Verb air and vehicle traffic patterns
14. Verb all aircraft movements areas

Requisite Skills
1. Operate passenger restraint devices
2. Maintain safe following distances
3. Maintain control of the ARFF apparatus while accelerating, decelerating, and turning, given road, weather, and traffic conditions
4. Operate the ARFF apparatus under adverse environmental or driving surface conditions
5. Use automotive gauges and controls
Job Performance Requirements
Operate an ARFF apparatus on an airport surface in compliance with all applicable federal, state, and local laws, jurisdictional rules and regulations, and operational limitations of the ARFF apparatus.

NFPA: Operate an ARFF vehicle, given a predetermined route on an airport that includes the maneuvers listed in 4.3.1, and operation in all aircraft movement areas, so that the vehicle is operated in compliance with all applicable federal, state/provincial, and local laws and departmental rules and regulations.

4.3.1* Operate a fire apparatus, given a vehicle and a predetermined route on a public way that incorporates the maneuvers and features that the driver/operator is expected to encounter during normal operations, so that the vehicle is operated in compliance with all applicable state and local laws and departmental rules and regulations.

A.4.3.1 The committee’s intent is to have the following maneuvers and features accomplished by the driver/operator. The committee recognizes that each of these situations might not exist within the authority having jurisdiction. The committee considers the following driving situations essential to driver/operator skills:
(1) Four left turns and four right turns
(2) A straight section of urban business street or a two-lane rural road at least 1 mi (1.6 km) in length
(3) One through-intersection and two intersections where a stop has to be made
(4) One railroad crossing
(5) One curve, either left or right
(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
(7) A downgrade steep enough and long enough to require down-shifting and braking
(8) An upgrade steep enough and long enough to require gear changing to maintain speed
(9) One underpass or a low clearance or bridge
2-2: Operate an ARFF Apparatus off an Improved Surface during Normal Conditions

**Authority**


- Paragraph 9.1.3

Office of the State Fire Marshal

**Given**

1. ARFF apparatus
2. Applicable laws and regulations
3. Policies and procedures of the jurisdiction
4. Predetermined route off an improved surface that incorporates the maneuvers and features expected during normal operations

**Requisite Knowledge**

1. Explain the effects on vehicle control of braking reaction time and load factors
2. Explain the effects of high center of gravity on roll-over potential, general steering reactions, speed, and centrifugal force
3. Discuss applicable laws and regulations
4. Describe the principles of skid avoidance, night driving, shifting, and gear patterns
5. Discuss negotiating intersections, railroad crossings, and bridges
6. Describe weight and height limitations for both roads and bridges
7. Describe automotive gauges and their operation
8. Explain operational limits

**Requisite Skills**

1. Operate passenger restraint devices
2. Maintain safe following distances
3. Maintain control of the ARFF apparatus while accelerating, decelerating, and turning, given road, weather, and traffic conditions
4. Operate during nonemergency operations
5. Operate the ARFF apparatus under adverse environmental or driving surface conditions
6. Use automotive gauges and controls

**Job Performance Requirements**

Operate an aircraft rescue and firefighting apparatus off an improved surface in compliance with all jurisdictional rules and regulations, and operational limitations of the apparatus.
NFPA: Operate an ARFF apparatus, given a predetermined route, off of an improved surface that incorporates the maneuvers and features that the driver/operator is expected to encounter during normal operations, so that the vehicle is operated in compliance with all applicable departmental rules and regulations and the design limitations of the vehicle.
2-3: Maneuver and Position an ARFF Apparatus for Correct Operation

Authority
• Paragraph 9.2.1
Office of the State Fire Marshal

Given
1. ARFF apparatus
2. Policies and procedures of the jurisdiction
3. An incident location
4. A description of the largest aircraft that routinely uses the airport

Requisite Knowledge
1. Verb vehicle positioning for firefighting and rescue operations
2. Verb tower light signals
3. Verb aircraft recognition
4. Verb airport markings
5. Verb capabilities and limitations of turret devices
6. Verb effects of topography, ground, and weather conditions on agent application, distribution rates, and density

Requisite Skills
1. Determine a correct position for the ARFF apparatus
2. Maneuver the ARFF apparatus into that position while avoiding obstacles to operations

Job Performance Requirements
Maneuver and position an ARFF apparatus correctly at each operational position for the aircraft.

NFPA: Maneuver and position an ARFF vehicle, given an incident location and description that involves the largest aircraft that routinely uses the airport, so that the vehicle is positioned for correct operation at each operational position for the aircraft.
2-4: Produce an Effective Fire Stream while the ARFF Apparatus is in Both Forward and Reverse Power Modulation

**Authority**
- Paragraph 9.2.2

**Given**
1. ARFF apparatus
2. A discharge rate
3. An intended target
4. Other???

**Requisite Knowledge**
1. *Verb* principles of agent management and application
2. *Verb* effects of terrain and wind on agent application
3. *Verb* turret capabilities and limitations
4. *Verb* aircraft danger areas
5. *Verb* theoretical critical fire area and practical critical fire area
6. *Verb* aircraft entry and egress points
7. *Verb* correct apparatus placement

**Requisite Skills**
1. Provide power to the pump
2. Determine a correct position for the ARFF apparatus
3. Maneuver the ARFF apparatus into the correct position *while* avoiding obstacles to operations
4. Apply agent
5. Determine the length of time an extinguishing agent will be available

**Job Performance Requirements**
Produce an effective fire stream while the ARFF apparatus is in both forward and reverse power modulation by engaging the pump, deploying the turrets, delivering the agent to the intended target at the correct rate, and moving and continuously monitoring the apparatus for potential problems.

9.2.2 Produce a fire stream while the vehicle is in both forward and reverse power modulation, *given a discharge rate and intended target*, so that the pump is engaged, the turrets are
deployed, the agent is delivered to the intended target at the correct rate, and the apparatus is moved and continuously monitored for potential problems.
2-5: Produce an Effective Fire Stream

Authority
• Paragraph 9.2.3
Office of the State Fire Marshal

Given
1. ARFF apparatus
2. A discharge rate
3. Water supplied from:
   • Internal tank
   • Pressurized source
   • Static source in ARFF apparatus equipped with drafting capabilities
4. An intended target
5. Other???

Requisite Knowledge
1. Verb principles of agent management and application
2. Verb effects of terrain and wind on agent application
3. Verb turret capabilities and limitations
4. Verb tower light signals
5. Verb aircraft recognition
6. Verb airport markings
7. Verb aircraft danger areas
8. Verb theoretical critical fire area and practical critical fire area
9. Verb aircraft entry and egress points
10. Verb correct apparatus placement

Requisite Skills
1. Provide power to the pump
2. Determine a correct position for the ARFF apparatus
3. Maneuver the ARFF apparatus into the correct position while avoiding obstacles to operations
4. Apply agent
5. Determine the length of time an extinguishing agent will be available

Job Performance Requirements
Produce an effective fire stream by engaging the pump, deploying the turrets, delivering the agent to the intended target at the correct rate, and moving and continuously monitoring the ARFF apparatus for potential problems.
NFPA 9.2.3 Produce a fire stream, given a rate of discharge and water supplied from the sources specified in the following list, so that the pump is engaged, the turrets are deployed, the agent is delivered to the intended target at the correct rate, and the apparatus is continuously monitored for potential problems:
(1) The internal tank
(2)*Pressurized source
(3) Static source in fire apparatus equipped with drafting capabilities
# State Fire Training Content

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<th>Description</th>
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<tr>
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<td>Requisite Knowledge and Skills</td>
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## Certification: Fire Apparatus Driver/Operator – Wildland Fire Apparatus

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Aircraft Rescue and Firefighting Apparatus Operations

Course Plan

Course Details

Certification: Fire Apparatus Driver/Operator – Aircraft Rescue and Firefighting Apparatus

CTS Guide: Fire Apparatus Driver/Operator – Aircraft Rescue and Firefighting Apparatus (Month Year)

Description: This course provides information on preventive maintenance and operation of an aircraft rescue and Firefighting (ARFF) apparatus. Topics include routine tests, inspections, and servicing functions on the systems and components unique to ARFF apparatus, operating an ARFF apparatus on and off an improved surface, maneuvering and positioning an ARFF apparatus, and producing an effective fire stream. This course is based on the 2017 edition of NFPA 1002 Standard for Fire Apparatus Driver/Operator Professional Qualifications.

Designed For: Career and volunteer fire service personnel who drive and operate an ARFF apparatus

Prerequisites: Hold a valid Class C Firefighter Endorsed driver’s license (minimum) Successfully completed OSFM Fire Fighter II training Successfully completed Fire Apparatus Driver/Operator 1A Successfully completed Fire Apparatus Driver/Operator 1B

Standard: Complete all activities and skills Complete the summative test with a minimum score of 80%

Hours: Lecture: 25:00 Activities: 2:00 Skills: 60:00 Testing: 1:00

Hours (Total): 88:00

Maximum Class Size: 30
Aircraft Rescue and Firefighting Apparatus Operations

**Instructor Level:** This course requires one (1) primary instructor and sufficient assistant instructors to meet the skills ratio

**Instructor/Student Ratio:** Lecture: 1:30  Skills: 1:10

**Restrictions:** Sufficient ARFF apparatus and adequate space and types of terrain to accommodate the students in the class and the required skills

**SFT Designation:** CFSTES

**Required Resources**

**Instructor Resources**

To teach this course, instructors need:
- 14 CFR 139.315 - Aircraft Rescue and Firefighting: Index Determination
- 14 CFR 139.317 - Aircraft Rescue and Firefighting: Equipment and Agents
- 14 CFR 139.319 - Aircraft Rescue and Firefighting: Operational Requirements
- FAA Advisory Circular 150/5210-6D: Aircraft Fire Extinguishing Agents
- FAA Advisory Circular 150/5210-7D: Aircraft Rescue and Fire Fighting Communications
- FAA Advisory Circular 150/5210-17C: Programs for Training of Aircraft Rescue and Firefighting Personnel
- FAA Advisory Circular 150/5210-17D: Aircraft Rescue and Fire Fighting Communications
- FAA Advisory Circular 150/5210-20A: Ground Vehicle Operations to include Taxiing or Towing an Aircraft on Airports
- FAA Advisory Circular 150/5210-23: ARFF Vehicle and High Reach Extendable Turret (HRET) Operation, Training and Qualifications
- FAA Advisory Circular 150/5220-10E: Guide Specification for Aircraft Rescue and Fire Fighting (ARFF) Vehicles
- NFPA 402: Guide for Aircraft Rescue and Fire-Fighting Operations
- NFPA 403: Standard for Aircraft Rescue and Fire-Fighting Services at Airports
- NFPA 412: Standard for Evaluating Aircraft Rescue and Fire-Fighting Foam Equipment
- NFPA 414: Standard for Aircraft Rescue and Fire-Fighting Vehicles
- NFPA 1002: Standard for Fire Apparatus Driver/Operator Professional Qualifications
- Manufacturer’s servicing, testing, and inspection specifications and requirements
- Maintenance and inspection forms
- Policies and procedures of the jurisdiction

**Online Instructor Resources**

The following instructor resources are available online at [http://osfm.fire.ca.gov/training/instructorscorner.php](http://osfm.fire.ca.gov/training/instructorscorner.php):
- Aircraft Rescue and Fire Fighting Apparatus Operations required activities
Student Resources

To participate in this course, students need:

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 ARFF apparatus to accommodate the students in the class
- Tools and equipment for inspection and testing
- Internal water tank
- Pressurized water source
- Static water source
- Adequate space and terrain for required activities
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, 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
   - Required student resources
   - Class participation requirements

Discussion Questions
1. What is a summative test?

Activities
1. To be determined by the instructor.

Topic 1-2: Fire Apparatus Driver/Operator – Aircraft Rescue and Firefighting Apparatus Certification Process

Terminal Learning Objective
At the end of this topic, a student will be able to identify the courses and requirements for the Fire Apparatus Driver/Operator – Aircraft Rescue and Firefighting Apparatus certification, and be able to describe the certification task book and testing process.
Enabling Learning Objectives

1. Identify the courses required for Fire Apparatus Driver/Operator – Aircraft Rescue and Firefighting Apparatus certification
   - Fire Apparatus Driver/Operator 1A: Driver/Operator
   - Fire Apparatus Driver/Operator 1B: Pumping Apparatus Operations
   - Aircraft Rescue and Firefighting Apparatus Operations
   - Airport Fire Fighter (NFPA 1003)

2. Identify any other requirements for Fire Apparatus Driver/Operator – Aircraft Rescue and Firefighting Apparatus certification
   - OSFM certified Fire Fighter II
   - Experience
     - Have a minimum of one (1) year full-time, paid experience in a California fire department with the primary responsibility as an aircraft rescue and firefighting apparatus driver/operator
     - [or]
     - Have a minimum of two (2) years volunteer or part-time, paid experience in a California fire department with the primary responsibility as an aircraft rescue and firefighting apparatus driver/operator

3. Describe the certification task book process
   - Complete all prerequisites and course work
   - Submit application and fees to request certification task book
   - Complete all job performance requirements included in the task book
   - Must have identified evaluator verify individual task completion via signature
   - Must have Fire Chief or authorized representative verify task book completion via signature
   - Must be employed by a California Fire Agency in the position prior to submitting completed task book to State Fire Training

4. Describe the certification testing process
   - Complete course work
   - Schedule online certification test
   - Schedule skills evaluation test

Discussion Questions

1. What is the experience requirement for Fire Apparatus Driver/Operator – Aircraft Rescue and Firefighting Apparatus certification?

Topic 1-3: Responsibilities of an Aircraft Rescue and Firefighting Apparatus Operator

Terminal Learning Objective

At the end of this topic, a student, given the definitions of duty, will be able to define the responsibilities of the ARFF Apparatus Operator.

Enabling Learning Objectives

1. Safely transport firefighters and ARFF apparatus
2. Operate the ARFF apparatus properly, swiftly, and safely
3. Locate downed aircraft quickly
4. Apply extinguishing agents
5. Exercise agent conservation

**Discussion Questions**
1. What are some skills and abilities required of an ARFF apparatus operator?
2. How might these be different from structural firefighters?

### Unit 2: Preventive Maintenance

**Topic 2-1: Perform and Document the Visual and Operational Checks on the Systems and Components Unique To ARFF Apparatus**

**Terminal Learning Objective**
At the end of this topic, a student, given an ARFF apparatus, tools and equipment, manufacturer’s servicing, testing, and inspection specifications and requirements, inspection forms, maintenance and inspection forms, and policies and procedures of the jurisdiction, will be able to perform and document the visual and operational checks on the systems and components unique to an ARFF apparatus, in addition to those in NFPA 1002 Paragraph 4.2.1, to verify their operational status.

**Enabling Learning Objectives**
1. Explain the manufacturer’s servicing, testing, and inspection specifications and requirements for an ARFF apparatus
2. Discuss the Federal Aviation Administration (FAA) and NFPA requirements for an ARFF apparatus, including extinguishing systems
3. Discuss the policies and procedures of the jurisdiction for routine tests, inspections, and servicing functions of an ARFF apparatus, including documentation requirements
4. Describe ARFF apparatus systems and components
   - Agent dispensing systems
   - Secondary extinguishing systems
   - Vehicle-mounted breathing air systems
   - Braking system
   - Coolant system
   - Electrical system
   - Exhaust system
   - Fuel systems
   - Steering and suspension systems
   - Batteries
   - Belts
   - Body, frame, and cab
   - Fluids
   - Lighting
Aircraft Rescue and Firefighting Apparatus Operations

- Oil and lubrication
- Tires
- Tools, appliances, and equipment

5. Inspect an ARFF apparatus
6. Use tools and equipment
7. Recognize system problems and out-of-service criteria
8. Correct any deficiency noted according to policies and procedures and/or manufacturer’s specifications and requirements

Discussion Questions
1. What equipment is unique to an ARFF apparatus?
2. What is the difference between daily, weekly, and monthly inspection schedules?
3. What other systems or components are tested or inspected outside of the routine schedule?
4. What are some common problem areas?

Activities
1. Divide students into small groups. Have each group perform an ARFF apparatus inspection using a form provided by the instructor. Have each group present their findings.

CTS Guide Reference: CTS 1-1

Unit 3: Operations

Topic 3-1: Operate an ARFF Apparatus on an Airport Surface during Normal Conditions

Terminal Learning Objective
At the end of this topic, a student, given an ARFF apparatus, applicable laws and regulations, policies and procedures of the jurisdiction, and a predetermined route on an air operations area (AOA) including all aircraft movement areas that incorporates the maneuvers and features expected during apparatus operations, will be able to operate an ARFF apparatus on an airport surface in compliance with all applicable federal, state, and local laws, jurisdictional rules and regulations, and operational limitations of the ARFF apparatus.

Enabling Learning Objectives
1. Discuss applicable laws and regulations
2. Review policies and procedures of the jurisdiction
3. Explain the effects on vehicle control of braking reaction time and load factors
4. Explain the effects of high center of gravity on roll-over potential, general steering reactions, speed, and centrifugal force
5. Describe the principles of skid avoidance, night driving, and shifting
6. Discuss negotiating intersections, railroad crossings, and bridges
7. Describe weight and height limitations for both roads and bridges
8. Describe automotive gauges and their operation
9. Explain operational limits
10. Discuss hazards of driving with limited visibility
11. Explain control tower light signals
12. Describe airfield markings and lighting
13. Explain runway and taxiway designations
14. Explain air traffic patterns
15. Discuss vehicle traffic patterns
16. Discuss all aircraft movements areas
17. Operate passenger restraint devices
18. Maintain safe following distances
19. Maintain control of the ARFF apparatus while accelerating, decelerating, and turning, given road, weather, and traffic conditions
20. Operate the ARFF apparatus under normal operating conditions
21. Use automotive gauges and controls

Discussion Questions
1. What are the performance differences between an ARFF apparatus and any other fire apparatus?
2. What is the difference between an AOA and an aircraft movement area?
3. What are the procedures for accessing an aircraft movement area?
4. What issues will you encounter driving at night versus the day?
5. What are some concerns with FOD and obstacles on the airfield when maneuvering to your objective?

Activities
1. Activity 3-1-1: Operate an ARFF Apparatus on an Improved Surface

CTS Guide Reference: CTS 2-1

Topic 3-2: Operate an ARFF Apparatus off an Improved Surface

Terminal Learning Objective
At the end of this topic, a student, given an ARFF apparatus, applicable laws and regulations, policies and procedures of the jurisdiction, and a predetermined route off an improved surface that incorporates the maneuvers and features expected during apparatus operations, will be able to operate an ARFF apparatus off an improved surface in compliance with all jurisdictional rules and regulations, and operational limitations of the apparatus.

Enabling Learning Objectives
1. Discuss applicable laws and regulations
2. Review policies and procedures of the jurisdiction
3. Explain the effects on vehicle control of braking reaction time and load factors
4. Explain the effects of high center of gravity on roll-over potential, general steering reactions, speed, and centrifugal force
5. Describe the principles of skid avoidance, night driving, and shifting when driving off an improved surface
6. Describe automotive gauges and their operation when driving off an improved surface
7. Explain operational limits
8. Operate passenger restraint devices
9. Maintain safe following distances
10. Maintain control of the ARFF apparatus while accelerating, decelerating, and turning, given road, weather, and traffic conditions
11. Operate during nonemergency operations
12. Operate the ARFF apparatus off an improved surface
13. Use automotive gauges and controls

Discussion Questions
1. Which is the most important consideration when transitioning to off-road?
2. How will the operation of the apparatus differ?
3. What are some indicators of unsafe driving terrain?
4. What is the safest route to your objective?
5. How does your angle of approach and departure affect your response route?

Activities
1. Activity 3-2-1: Operate an ARFF Apparatus off an Improved Surface

CTS Guide Reference: CTS 2-2

Topic 3-3: Maneuver and Position an ARFF Apparatus for Correct Operation

Terminal Learning Objective
At the end of this topic, a student, given an ARFF apparatus, policies and procedures of the jurisdiction, an incident location, and a description of the largest aircraft that routinely uses the airport, will be able to maneuver and position an ARFF apparatus correctly at each operational position for the aircraft.

Enabling Learning Objectives
1. Discuss aircraft recognition and familiarization
2. Explain aircraft spotting orientation and danger areas
3. Explain apparatus positioning for firefighting and rescue operations
4. Discuss the capabilities and limitations of turrets and appliances
5. Describe the effects of topography, ground, weather conditions, and pattern selection for agent application, distribution rates, and foam quality
6. Describe correct apparatus placement
7. Determine a correct position for the ARFF apparatus
8. Maneuver the ARFF apparatus into that position while avoiding obstacles to operations

Discussion Questions
1. What are the general types of aircraft found at your airfield?
2. What are some considerations prior to discharging the agent?
3. When would you use your undertruck nozzles?
4. What are the vehicle protection devices on your apparatus?
5. What are the vehicle protection devices on your apparatus?

Activities
1. In the classroom, display an aircraft accident and ask students where they would maneuver and position their apparatus.
2. Activity 3-3-1: Maneuver and Position an ARFF Apparatus
CTS Guide Reference: CTS 2-3

Topic 3-4: Produce an Effective Fire Stream

Terminal Learning Objective
1. At the end of this topic, a student, given an ARFF apparatus, discharge rate, and an intended target, will be able to produce an effective fire stream while the ARFF apparatus is in both forward and reverse power modulation by engaging the pump, deploying the turrets, delivering the agent to the intended target at the correct rate, and moving monitoring the apparatus for potential problems.
2. At the end of the topic, a student, given an ARFF apparatus, discharge rate, water supplied from an internal tank, pressurized source, static source in ARFF apparatus equipped with drafting capabilities, and an intended target, will be able to produce an effective fire stream by engaging the pump, deploying the turrets, delivering the agent to the intended target at the correct rate, and monitoring the ARFF apparatus for potential problems.

Enabling Learning Objectives
1. Discuss ARFF apparatus modulation capabilities and limitations
2. Describe secondary extinguishing agents and their effect on the primary agent application
3. Explain principles of agent management and application
4. Explain theoretical and practical critical areas (TCA/PCA)
5. Explain aircraft entry and egress points
6. Provide power to the pump
7. Determine a correct position for the ARFF apparatus
8. Maneuver the ARFF apparatus into the correct position while avoiding obstacles to operations
9. Select and apply agent
10. Determine the length of time an extinguishing agent will be available

Discussion Questions
1. What are the proper procedures for transitioning from road to pump-and-roll?
2. What are some safety considerations before modulating in reverse?
3. What significance does the PCA affect your fire stream?
4. How can the environmental conditions affect your fire stream?
5. What are the benefits of secondary extinguishing agents?

Activities
1. Activity 3-4-1: Produce an Effective Fire Stream

CTS Guide Reference: CTS 2-4
## Time Table

<table>
<thead>
<tr>
<th>Segment</th>
<th>Lecture Time</th>
<th>Activity/Skills Time</th>
<th>Total Unit Time</th>
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<tr>
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### Lecture, Activity, and Unit Totals:

- Total Lecture Time (LT): 25:00
- Total Activity Time (AT): 2:00
- Total Skills Practice Time (ST): *60:00
- Total Testing Time (TT): 1:00
- **Total Course Time**: 88:00

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Course Totals

Draft #2 (12/29/2017 3:50 PM) Month Year
Aircraft Rescue and Firefighting Apparatus Operations

Note: Skills practice time will vary depending on the number of students in the program. It is important to remember that the suggested skill hours are for 30 students.
Operate an ARFF Apparatus on an Improved Surface

Activity 3-1-1


- Paragraph 9.1.2
  Operate an ARFF vehicle, given a predetermined route on an airport that includes the maneuvers listed in 4.3.1, and operation in all aircraft movement areas, so that the vehicle is operated in compliance with all applicable federal, state/provincial, and local laws and departmental rules and regulations.

Format: Individual

Time Frame: Open (based on a total of 62:00 hours for skills practice and completion)

Description
This activity provides students with an opportunity to operate an ARFF apparatus on an improved surface in compliance with all applicable jurisdictional rules and regulations and operational limitations of the apparatus.

Materials
- ARFF apparatus
- Designated improved surface area for driving

Instructor Notes
- You can combine this activity with Activity 3-2-1: Operate an ARFF Apparatus off an Improved Surface if both driving surfaces are available.
- Develop a predetermined route on an improved surface that includes the following driving situations:
  1. Four left turns and four right turns
  2. A straight section of urban business street or a two-lane rural road at least 1 mile in length
  3. One through-intersection and two intersections where a stop has to be made
  4. One curve, either left or right
  5. A downgrade steep enough and long enough to require down-shifting and braking
  6. An upgrade steep enough and long enough to require gear changing to maintain speed
  7. One underpass or a low clearance or bridge
Operate an ARFF Apparatus off an Improved Surface

Activity 3-2-1


- Paragraph 9.1.3
  Operate an ARFF apparatus, given a predetermined route, off of an improved surface that incorporates the maneuvers and features that the driver/operator is expected to encounter during normal operations, so that the vehicle is operated in compliance with all applicable departmental rules and regulations and the design limitations of the vehicle.

Format: Individual

Time Frame: Open (based on a total of 62:00 hours for skills practice and completion)

Description
This activity provides students with an opportunity to operate an ARFF apparatus off an improved surface in compliance with all applicable jurisdictional rules and regulations and operational limitations of the apparatus.

Materials
- ARFF apparatus
- Designated off an improved surface area for driving

Instructor Notes
- You can combine this activity with Activity 3-1-1: Operate an ARFF Apparatus on an Improved Surface, if both driving surfaces are available.
- Develop a predetermined route of an improved surface that includes the following driving situations:
  1. Loose or wet soil
  2. Steep grades (30 percent fore and aft)
  3. Limited sight distance
  4. Vehicle clearance obstacles (height, width, undercarriage)
  5. Limited space for turnaround
  6. Side slopes (20 percent side to side)
Maneuver and Position an ARFF Apparatus

Activity 3-3-1


- Paragraph 9.2.1
  Maneuver and position an ARFF vehicle, given an incident location and description that involves the largest aircraft that routinely uses the airport, so that the vehicle is positioned for correct operation at each operational position for the aircraft.

Format: Individual

Time Frame: Open (based on a total of 62:00 hours for skills practice and completion)

Description
This activity provides students with an opportunity to maneuver and position an ARFF apparatus correctly at one operational position for the aircraft.

Materials
- ARFF apparatus
- Designated improved surface area
- Aircraft or simulated aircraft

Instructor Notes
- You can combine this activity with Activity 3-4-1: Produce an Effective Stream.
- Develop a field-based scenario of an aircraft accident.
- Have each student maneuver and position the ARFF apparatus correctly at one or more operational areas of the aircraft based on the scenario.
Produce an Effective Fire Stream

Activity 3-4-1


- Paragraphs 9.2.2 and 9.2.3
  Produce a fire stream while the vehicle is in both forward and reverse power modulation, given a discharge rate and intended target, so that the pump is engaged, the turrets are deployed, the agent is delivered to the intended target at the correct rate, and the apparatus is moved and continuously monitored for potential problems.

Produce a fire stream, given a rate of discharge and water supplied from the sources specified in the following list, so that the pump is engaged, the turrets are deployed, the agent is delivered to the intended target at the correct rate, and the apparatus is continuously monitored for potential problems:
  1. The internal tank
  2. Pressurized source
  3. Static source in fire apparatus equipped with drafting capabilities

Format: Individual

Time Frame: Open (based on a total of 62:00 hours for skills practice and completion)

Description
This activity provides students with an opportunity to produce an effective fire stream and hit a target using a designated turret while in a stationery position and modulating in both forward and reverse.

Materials
- ARFF apparatus
- Designated improved surface area
- Aircraft or simulated aircraft

Instructor Notes
- You can combine this activity with Activity 3-3-1: Maneuver and Position an ARFF Apparatus.
- Develop a field-based scenario of an aircraft accident.
- Have each student produce an effective fire stream and hit a target using a designated turret while in a stationery position and modulating in both forward and reverse.
Identification

Candidate: ______________________________________________________________

SFT ID Number: __________________________________________________________

Mailing Address: _________________________________________________________

Phone (Home): _______________  Phone (Mobile): _______________

Phone (Work): _______________  Email: __________________________

Agency: __________________________________________________________________

Mailing Address: __________________________________________________________________

How would you prefer to receive your certification task book?

☐ Email (to address listed above)

☐ US mail (to home mailing address)

Instructions

1. To apply for a certification task book, download (from the SFT website) and print:
   a. The SFT Fee Schedule
   b. The certification task book application for the job function certification being pursued

2. On the SFT Fee Schedule:
   a. Check the box indicating the desired job function certification
   b. Write in the Total Submitted amount
   c. Complete the bottom portion
   d. Sign and date

3. Complete the certification task book application (this document) and attach all supporting and verification documentation.
4. A complete certification task book application package includes:
   a. The SFT Fee Schedule
   b. Nonrefundable payment by check or money order (payable to CAL FIRE – State Fire Training)
   c. The certification task book application
   d. All supporting and verification documentation

5. Submit the complete certification task book application package to:

   State Fire Training
   Attn: Cashier
   PO Box 997446
   Sacramento, CA 95899-7446

Prerequisites

Certification
1. Document the certifying agency, certification number, and completion date for the job function certification. Or document the appropriate exception.
2. Submit verification for any job function certification issued by an agency other than State Fire Training.

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Training
1. Document the granting agency/institution and completion date.
2. Submit verification for any training or course offered by an agency other than State Fire Training.

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<th>Training/Course</th>
<th>Granting Agency/Institution</th>
<th>Completion Date (listed on certificate)</th>
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Fire Apparatus Driver/Operator – Aircraft Rescue and Firefighting Apparatus Certification Task Book Application

**Licensing**
1. Document the granting agency/institution, license/permit number, and expiration date.
2. Submit a copy of the license or permit.

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<th>License or Permit</th>
<th>Granting Agency/Institution</th>
<th>License/Permit Number</th>
<th>Expiration Date</th>
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<tbody>
<tr>
<td>Valid Class C Firefighter Endorsed driver’s license (California Vehicle Code, Section 12804.11)</td>
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<td></td>
</tr>
</tbody>
</table>

**Education**
1. Document the completion of each required course.
2. Submit verification of course completion (transcript, PACE equivalency letter, certification of completion, etc.) for any course completed outside of State Fire Training.

<table>
<thead>
<tr>
<th>Course</th>
<th>Completion Date (listed on certificate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Apparatus Driver/Operator 1A: Driver/Operator</td>
<td></td>
</tr>
<tr>
<td>Fire Apparatus Driver/Operator 1B: Pumping Apparatus Operations</td>
<td></td>
</tr>
<tr>
<td>Aircraft Rescue and Fire Fighting Apparatus Operations</td>
<td></td>
</tr>
</tbody>
</table>

**Certification Exam**
1. Document the examination date and your score.
2. Submit verification of certification exam completion for any exam offered by an agency, institution, or organization other than State Fire Training.

<table>
<thead>
<tr>
<th>Exam</th>
<th>Examination Date</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Apparatus Driver/Operator – Airport Rescue and Fire Fighting Apparatus Certification Exam</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Authorities

1. Print name, sign, and date the candidate statement.
2. Ask your fire chief or the authorized designee to complete the fire chief statement.

Candidate

Candidate: _______________________________________________________________

Candidate’s Printed Name

I, the undersigned, am the person applying for a Fire Apparatus Driver/Operator – Airport
Rescue and Fire Fighting Apparatus Certification Task Book. I hereby certify under penalty of
perjury under the laws of the State of California, that all information contained in this
application is true in every respect. I understand that misstatements, omissions of material
facts, or falsification of information or documents may be cause for rejection.

__________________________________________     ____________________________

Candidate’s Signature          Date

Candidate’s Fire Chief

Candidate’s Fire Chief: ________________________________________________

Fire Chief’s (or Authorized Designee’s) Printed Name

I, the undersigned, am the person authorized to verify the candidate’s application information. I
hereby certify under penalty of perjury under the laws of the State of California, that all
information contained in this application is true in every respect. I understand that
misstatements, omissions of material facts, or falsification of information or documents may be
cause for rejection.

__________________________________________     ____________________________

Fire Chief’s (or Authorized Designee’s) Signature          Date
Approval and Authorization

This section is for State Fire Training use only.

Incomplete Application

☐ The candidate has not met all application requirements and will be notified of missing or incomplete items (including fees) in writing with a checklist for completion. Email (to address listed above)

__________________________________________     ____________________________
State Fire Training Representative’s Signature     Date

Complete Application

☐ The candidate has met all application requirements and will be issued a certification task book.

__________________________________________     ____________________________
State Fire Training Representative’s Signature     Date
Fire Apparatus Driver/Operator – Airport Rescue and Firefighting Apparatus

Certification Task Book
Month Year

California Department of Forestry and Fire Protection
Office of the State Fire Marshal
State Fire Training
Fire Apparatus Driver/Operator – Aircraft Rescue & Firefighting Apparatus

Certification Task Book

Candidate: Click here to enter text.

SFT ID Number: Click here to enter text.

Fire Agency: Click here to enter text.

Issued By: Click here to enter text.

Issue Date: Click here to enter text.

This certification task book includes the certification training standards included in Fire Apparatus Driver/Operator – Airport Rescue and Fire Fighting Apparatus CTS Guide (Month Year) which is based on NFPA 1002 Standard for Fire Apparatus Driver/Operator Professional Qualifications (2017).

Published by:
State Fire Training, 1131 S Street, Sacramento, CA 95811
(916) 445-8200

Cover photo courtesy of Name, Department
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    Experience ...................................................................................................................... 4
    Rank or Position .............................................................................................................. 4
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Authorities .......................................................................................................................... 8
Review and Approval ......................................................................................................... 9
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Purpose and Process

The State Fire Training certification task book is a performance-based document. It lists the Experience, Rank or Position, and Job Performance requirements for certification.

Purpose

Each certification task book focuses on a single State Fire Training job function certification. A certification task book 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 rank or position, and has demonstrated the job performance requirements necessary to obtain that certification.

Responsibilities

Candidate Responsibilities

The candidate is the individual pursuing certification.

All candidates shall:

- Complete a block on the Signature Verification page with an original wet-ink signature.
- Complete the Experience, Rank, and Job Performance Requirements.
- Accurately record and maintain the certification task book.
- Sign and date the Candidate verification statement under the Authorities with an original wet-ink signature.
- Retain a copy of the completed certification task book.
- Submit the completed certification task book to State Fire Training.

Evaluator Responsibilities

An evaluator is any individual who verifies that the candidate can satisfactorily execute a job performance requirement. A qualified evaluator is designated by the candidate's fire chief (or authorized designee) and shall possess the equivalent or higher-level certification. If no such evaluator is present within the organization, the fire chief (or authorized designee) shall designate an individual with more experience than the candidate and a demonstrated ability to execute the job performance requirements. A certification task book may have more than one evaluator.

All evaluators shall:

- Complete a block on the Signature Verification page with an original wet-ink signature.
- Review and understand the candidate's certification task book requirements and responsibilities.
Purpose and Process

- Verify the candidate’s successful completion of one or more job performance requirements through observation or review.
- Sign all appropriate lines in the certification task book with an original wet-ink signature to record demonstrated performance of tasks.

Fire Chief Responsibilities

The fire chief (or authorized designee) is the individual who reviews and confirms the completion of a candidate’s certification task book.

The fire chief (or authorized designee) shall:
- Designate qualified evaluators.
- Complete a block on the Signature Verification page with an original wet-ink signature.
- Review the candidate’s certification task book requirements and responsibilities.
- Verify the candidate has obtained the appropriate signatures to verify successful completion of each job performance requirement.
- Sign the fire chief verification statement under Authorities with an original wet-ink signature. If signing as an authorized designee, verify that your signature is on file with State Fire Training.

Completion Process

When you receive your certification task book:

1. Thoroughly review the Experience, Rank, and Job Performance Requirements segments to make sure that you understand them.
2. Confirm who will evaluate your job performance requirements with your fire agency.
3. Complete the Experience segment, if applicable.
4. Complete the Rank or Position segment.
5. Complete each requirement in the Job Performance Requirements segment and ensure that an evaluator signs and dates each one to verify completion.
6. Ask your fire chief (or authorized designee) to verify certification task book completion by signing the appropriate paragraph under Authorities.
7. Make a copy of the completed certification task book to retain with your personal records.
8. Mail the original certification task book to State Fire Training (see address below).

After receipt and review of your completed certification task book, State Fire Training will authorize the certification task book and mail your certificate to you. State Fire Training retains the completed, authorized original certification task book in your career file.
Purpose and Process

If State Fire Training determines that your certification task book is incomplete State Fire Training will return your certification task book with a checklist indicating what needs to be completed.

Do not submit this certification task book until you have:
- Completed the Experience segment
- Fulfilled the Rank or Position segment
- Completed Job Performance Requirements
- Obtained all required signatures

State Fire Training Mailing Address

Office of the State Fire Marshal
State Fire Training
Attn: Certification Section
1131 S Street
Sacramento, CA  95811

Completion Timeframe

State Fire Training aims to update certification task books on a five-year cycle. A certification task book in process is valid until State Fire Training issues a new certification task book for the same job function certification.

If a candidate does not complete a certification task book before the release of a new version, State Fire Training will send the candidate a task book revision supplement identifying any revisions or new requirements. The candidate must fulfill all requirements included in the revision supplement and submit the revision supplement with the original task book.
Task Book Requirements

Experience

The candidate meets the following requirements for experience.

- Have a minimum of one (1) year full-time, paid experience in a California fire department with the primary responsibility as an aircraft rescue and firefighting apparatus driver/operator

  [or]

- Have a minimum of two (2) years volunteer or part-time, paid experience in a California fire department with the primary responsibility as an aircraft rescue and firefighting apparatus driver/operator

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Agency</th>
<th>Start Date</th>
<th>End Date</th>
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<td></td>
</tr>
</tbody>
</table>

Please attach additional pages if more space is needed to document experience.

Rank or Position

The candidate meets the following qualifications for rank or position. Performing in an acting capacity does not qualify.

<table>
<thead>
<tr>
<th>Rank or Position</th>
<th>Agency</th>
<th>Appointment Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire Apparatus Driver/Operator</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Job Performance Requirements

All job performance requirements must be performed in accordance with the standards of the authority having jurisdiction (AHJ) or the National Fire Protection Association (NFPA), whichever is more restrictive.

Preventive Maintenance

1. **[9.1.1]** Perform the visual and operational checks on the systems and components specified in the following list, in addition to those in 4.2.1, given an ARFF vehicle and the manufacturer’s servicing, testing, and inspection criteria; and policies and procedures of the jurisdiction, so that the operational status of the vehicle is verified:
   - Agent dispensing systems
   - Secondary extinguishing systems
   - Vehicle-mounted breathing air systems
   - Battery(ies)
   - Braking system
   - Coolant system
   - Electrical system
   - Fuel
   - Hydraulic fluids
   - Oil
   - Tires
   - Steering system
   - Belts
   - Tools, appliances, and equipment
   - Built-in safety features

   _______________  _____________________________  
   Date Completed  Evaluator Verification

Operations

2. **[9.1.2]** Operate an ARFF vehicle, given a predetermined route on an airport that includes the maneuvers listed in 4.3.1, and operation in all aircraft movement areas, so that the vehicle is operated in compliance with all applicable federal, state/provincial, and local laws and departmental rules and regulations.

   **[4.3.1]**
   - Four left turns and four right turns
(2) A straight section of urban business street or a two-lane rural road at least 1 mile in length
(3) One through-intersection and two intersections where a stop has to be made
(4) One railroad crossing
(5) One curve, either left or right
(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
(7) A downgrade steep enough and long enough to require down-shifting and braking
(8) An upgrade steep enough and long enough to require gear changing to maintain speed
(9) One underpass or a low clearance or bridge

Date Completed ___________________________ Evaluator Verification

3. [9.1.3] Operate an ARFF apparatus, given a predetermined route, off of an improved surface that incorporates the maneuvers and features that the driver/operator is expected to encounter during normal operations, so that the vehicle is operated in compliance with all applicable departmental rules and regulations and the design limitations of the vehicle.

(1) Loose or wet soil
(2) Steep grades (30 percent fore and aft)
(3) Limited sight distance
(4) Vehicle clearance obstacles (height, width, undercarriage)
(5) Limited space for turnaround
(6) Side slopes (20 percent side to side)

Date Completed ___________________________ Evaluator Verification

4. [9.2.1] Maneuver and position an ARFF vehicle, given an incident location and description that involves the largest aircraft that uses the airport, so that the vehicle is positioned for correct operation at each operational position for the aircraft.

Date Completed ___________________________ Evaluator Verification

5. [9.2.2] Produce a fire stream while the vehicle is in both forward and reverse power modulation, given a discharge rate and intended target, so that the pump is engaged, the turrets are deployed, the agent is delivered to the intended target at the correct rate, and the apparatus is moved and monitored for potential problems.
6. **[9.2.3]** Produce a fire stream, given a rate of discharge and water supplied from the sources specified in the following list, so that the pump is engaged, the turrets are deployed, the agent is delivered to the intended target at the correct rate, and the apparatus is monitored for potential problems:

   (1) Internal tank
   (2) Pressurized source
   (3) Static source in fire apparatus equipped with drafting capabilities
Authorities

Candidate

Candidate: __________________________________________

Candidate’s Printed Name

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 completion of all experience, rank, and job performance requirements made herein are true in every respect. I understand that misstatements, omissions of material facts, or falsification of information or documents may be cause for rejection or revocation.

__________________________________________
Candidate’s Signature

______________________________
Date

Candidate’s Fire Chief

Candidate’s Fire Chief: _______________________________

Fire Chief’s (or Authorized Designee’s) Printed Name

I, the undersigned, am the person authorized to verify the candidate’s experience, rank, and job performance requirements. I hereby certify under penalty of perjury under the laws of the State of California, that completion of all experience, rank, and job performance requirements made herein are true in every respect. I understand that misstatements, omissions of material facts, or falsification of information or documents may be cause for rejection.

______________________________
Fire Chief’s (or Authorized Representative’s) Signature

______________________________
Date
Review and Approval

This section is for State Fire Training use only.

State Fire Training Review

I have reviewed this certification task book and verify that it is:

☐ Complete

☐ Incomplete
  (See attached form for required revisions or corrective action.)

___________________________________________  _____________________________  
State Fire Training Representative’s Signature  Date

Certification Issued

I verify that the candidate has met all requirements for this job function certification.

___________________________________________  _____________________________  
State Fire Training Representative’s Signature  Date
Signature Verification

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

Name: ________________________________ (print)
Job Title: ________________________________ (print)
Organization: ________________________________ (print)
Signature: ________________________________ (sign)

Name: ________________________________ (print)
Job Title: ________________________________ (print)
Organization: ________________________________ (print)
Signature: ________________________________ (sign)

Name: ________________________________ (print)
Job Title: ________________________________ (print)
Organization: ________________________________ (print)
Signature: ________________________________ (sign)

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Job Title: ________________________________ (print)
Organization: ________________________________ (print)
Signature: ________________________________ (sign)
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Job Title: ______________________________________ (print)
Organization: ____________________________________ (print)
Signature: _______________________________________ (sign)

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Job Title: ______________________________________ (print)
Organization: ____________________________________ (print)
Signature: _______________________________________ (sign)

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Job Title: ______________________________________ (print)
Organization: ____________________________________ (print)
Signature: _______________________________________ (sign)

Name: __________________________________________ (print)
Job Title: ______________________________________ (print)
Organization: ____________________________________ (print)
Signature: _______________________________________ (sign)
## Driver / Operator Series

### Course Layout and Prerequisites

**Draft #2 (12/29/2017) Month Year**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course Hours</strong></td>
<td>38</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>24</td>
<td>88</td>
</tr>
<tr>
<td><strong>Prerequisites</strong></td>
<td>Successfully Completed Courses: OSFM Fire Fighter I training</td>
<td>OSFM Fire Fighter I training</td>
<td>OSFM Fire Fighter I training</td>
<td>OSFM Fire Fighter I training</td>
<td>OSFM Fire Fighter II training</td>
<td>OSFM Fire Fighter I training</td>
</tr>
<tr>
<td></td>
<td>Fire Apparatus Driver/Operator 1A</td>
<td>Fire Apparatus Driver/Operator 1A</td>
<td>Fire Apparatus Driver/Operator 1A</td>
<td>Fire Apparatus Driver/Operator 1A</td>
<td>Fire Apparatus Driver/Operator 1A</td>
<td>Fire Apparatus Driver/Operator 1A</td>
</tr>
<tr>
<td></td>
<td>Fire Apparatus Driver/Operator 1B</td>
<td>Fire Apparatus Driver/Operator 1B</td>
<td>Fire Apparatus Driver/Operator 1B</td>
<td>Fire Apparatus Driver/Operator 1B</td>
<td>Fire Apparatus Driver/Operator 1B</td>
<td>Fire Apparatus Driver/Operator 1B</td>
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<tr>
<td><strong>Valid Driver's License</strong></td>
<td>Minimum Class C Firefighter Endorsed</td>
<td>Minimum Class C Firefighter Endorsed</td>
<td>Minimum Class C Firefighter Endorsed</td>
<td>Minimum Class C Firefighter Endorsed</td>
<td>Minimum Class C Firefighter Endorsed</td>
<td>Minimum Class C Firefighter Endorsed</td>
</tr>
<tr>
<td><strong>Completed Experience</strong></td>
<td>4.3.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1) Four left turns and four right turns</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>(2) A straight section of urban business street or a two-lane rural road at</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completed a minimum of four (4) hours driving an aerial apparatus</td>
<td>Completed a minimum of four (4) hours driving a wildland fire apparatus</td>
<td>Completed a minimum of four (4) hours driving an ARFF apparatus</td>
<td>Completed a minimum of four (4) hours driving a water tender</td>
<td>All activities from Driver/Operator 1A while driving a wildland fire apparatus</td>
<td>All activities from Driver/Operator 1A while driving a water tender</td>
</tr>
</tbody>
</table>
least 1 mi (1.6 km) in length
(3) One through-intersection and two intersections where a stop has to be made
(4) One railroad crossing
(5) One curve, either left or right
(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
(7) A downgrade steep enough and long enough to require down-shifting and braking
(8) An upgrade steep enough and long enough to require gear changing to maintain speed
(9) One underpass or a low clearance or bridge
<table>
<thead>
<tr>
<th>Original RKS (as appears in NFPA)</th>
<th>NFPA Standard</th>
<th>NFPA Paragraph</th>
<th>CTS: Exists</th>
<th>CTS: Removed</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer's specifications and requirements</td>
<td>NFPA 1002</td>
<td>9.1.1(A)</td>
<td>1-1</td>
<td>Changed: <em>Explain</em> manufacturer’s specifications and requirements</td>
<td></td>
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<tr>
<td>Policies and procedures of the jurisdiction</td>
<td>NFPA 1002</td>
<td>9.1.1(A)</td>
<td>1-1</td>
<td>Changed: <em>Discuss</em> the policies and procedures of the jurisdiction, <em>including documentation requirements</em></td>
<td></td>
</tr>
<tr>
<td>Use hand tools</td>
<td>NFPA 1002</td>
<td>9.1.1(B)</td>
<td>1-1</td>
<td>Changed: Use tools <em>and equipment</em></td>
<td></td>
</tr>
<tr>
<td>Recognize system problems</td>
<td>NFPA 1002</td>
<td>9.1.1(B)</td>
<td>1-1</td>
<td>Changed: Recognize system problems <em>and out-of-service criteria</em></td>
<td></td>
</tr>
<tr>
<td>Correct any deficiency noted according to policies and procedures</td>
<td>NFPA 1002</td>
<td>9.1.1(B)</td>
<td>1-1</td>
<td>Changed: Correct any deficiency noted according to policies and procedures <em>and/or manufacturer’s servicing, testing, and inspection specifications and requirements</em></td>
<td></td>
</tr>
<tr>
<td>The effects on vehicle control of liquid surge, braking reaction time, and load factors</td>
<td>NFPA 1002</td>
<td>9.1.2(A)</td>
<td>2-1</td>
<td>Changed: <em>Explain</em> the effects on vehicle control of liquid surge, braking reaction time, and load factors</td>
<td></td>
</tr>
<tr>
<td>Effects of high center of gravity on rollover potential, general steering reactions, speed, and centrifugal force</td>
<td>NFPA 1002</td>
<td>9.1.2(A)</td>
<td>2-1</td>
<td>Changed: <em>Explain the</em> effects of high center of gravity on rollover potential, general steering reactions, speed, and centrifugal force</td>
<td></td>
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<tr>
<td>Applicable laws and regulations</td>
<td>NFPA 1002</td>
<td>9.1.2(A)</td>
<td>2-1</td>
<td>Changed: <em>Discuss</em> applicable laws and regulations <em>for operating an ARFF apparatus on an airport</em></td>
<td></td>
</tr>
<tr>
<td>Principles of skid avoidance, night driving, shifting, and gear patterns</td>
<td>NFPA 1002</td>
<td>9.1.2(A)</td>
<td>2-1</td>
<td>Changed: <em>Describe the</em> principles of skid avoidance, night driving, and shifting</td>
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<tr>
<td>Negotiating intersections, railroad crossings, and bridges</td>
<td>NFPA 1002</td>
<td>9.1.2(A)</td>
<td>2-1</td>
<td>Changed: <em>Discuss</em> negotiating intersections, railroad crossings, and bridges</td>
<td></td>
</tr>
<tr>
<td>Original RKS (as appears in NFPA)</td>
<td>NFPA Standard</td>
<td>NFPA Paragraph</td>
<td>CTS: Exists</td>
<td>CTS: Removed</td>
<td>Notes</td>
</tr>
<tr>
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</tr>
<tr>
<td>Weight and height limitations for both roads and bridges</td>
<td>NFPA 1002</td>
<td>9.1.2(A)</td>
<td>2-1</td>
<td></td>
<td>Changed: <em>Describe</em> weight and height limitations for both roads and bridges</td>
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<tr>
<td>Identification and operation of automotive gauges</td>
<td>NFPA 1002</td>
<td>9.1.2(A)</td>
<td>2-1</td>
<td></td>
<td>Changed: <em>Describe</em> automotive gauges and their operation</td>
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<td>Operational limits</td>
<td>NFPA 1002</td>
<td>9.1.2(A)</td>
<td>2-1</td>
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<td>Changed: <em>Explain</em> operational limits of an ARFF apparatus when driving on an airport</td>
</tr>
<tr>
<td>Hazards of driving through smoke</td>
<td>NFPA 1002</td>
<td>9.1.2(A)</td>
<td>2-1</td>
<td></td>
<td>Changed: <em>Discuss</em> hazards of driving with limited visibility</td>
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<tr>
<td>Control tower light signals</td>
<td>NFPA 1002</td>
<td>9.1.2(A)</td>
<td>2-1</td>
<td></td>
<td>Changed: <em>Explain</em> control tower light signals</td>
</tr>
<tr>
<td>Airfield markings</td>
<td>NFPA 1002</td>
<td>9.1.2(A)</td>
<td>2-1</td>
<td></td>
<td>Changed: <em>Describe</em> airfield markings and lighting</td>
</tr>
<tr>
<td>Runway and taxiway designations</td>
<td>NFPA 1002</td>
<td>9.1.2(A)</td>
<td>2-1</td>
<td></td>
<td>Changed: <em>Explain</em> runway and taxiway designations</td>
</tr>
<tr>
<td>Air and vehicle traffic patterns</td>
<td>NFPA 1002</td>
<td>9.1.2(A)</td>
<td>2-1</td>
<td></td>
<td>Changed: <em>Explain</em> air traffic patterns</td>
</tr>
<tr>
<td>All aircraft movement areas</td>
<td>NFPA 1002</td>
<td>9.1.2(A)</td>
<td>2-1</td>
<td></td>
<td>Changed: <em>Discuss</em> all aircraft movements areas</td>
</tr>
<tr>
<td>Operate passenger restraint devices</td>
<td>NFPA 1002</td>
<td>9.1.2(B)</td>
<td>2-1</td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td>Maintain safe following distances</td>
<td>NFPA 1002</td>
<td>9.1.2(B)</td>
<td>2-1</td>
<td>No change</td>
<td></td>
</tr>
<tr>
<td>Maintain control of the vehicle while accelerating, decelerating, and turning, given road, weather, and traffic conditions</td>
<td>NFPA 1002</td>
<td>9.1.2(B)</td>
<td>2-1</td>
<td></td>
<td>Changed: Maintain control of the ARFF apparatus while accelerating, decelerating, and turning, given road, weather, and traffic conditions when driving on an airport</td>
</tr>
<tr>
<td>Operate under adverse environmental or driving surface conditions</td>
<td>NFPA 1002</td>
<td>9.1.2(B)</td>
<td>2-1</td>
<td></td>
<td>Changed: Operate the ARFF apparatus under adverse environmental or driving surface conditions when driving on an airport</td>
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<td>The effects on vehicle control of braking reaction time and load factors</td>
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<td>Changed: <em>Explain</em> the effects on vehicle control of braking reaction time and load factors <em>when operating an ARFF apparatus off an improved surface</em></td>
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<td>Changed: <em>Discuss</em> applicable laws and regulations for operating an ARFF apparatus off an improved surface</td>
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<td>Changed: <em>Describe the</em> principles of skid avoidance, night driving, and shifting <em>when operating an ARFF apparatus off an improved surface</em></td>
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<td>Operate the ARFF apparatus during nonemergency operations</td>
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<td>Changed: Discuss aircraft recognition and familiarization</td>
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<td>Effects of topography, ground, and weather conditions on agent application, distribution rates, and density</td>
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<td>Changed: Maneuver the ARFF apparatus into the correct position while avoiding obstacles to operations</td>
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