Emergency Vehicle Technician 3

Certification Training Standards Guide (2020)

California Department of Forestry and Fire Protection
Office of the State Fire Marshal
State Fire Training
Emergency Vehicle Technician 3

Certification Training Standards Guide (2020)

This CTS guide utilizes NFPA 1071 Standard for Emergency Vehicle Technician Professional Qualifications (2020) to provide the qualifications for State Fire Training’s Emergency Vehicle Technician 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).

Published by State Fire Training.

Published January 2021

Cover photo courtesy of Lawrence Achen, Central Fire Protection District, Santa Cruz, CA
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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 capstone 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.

**CAL FIRE**
- Thom Porter, Director
- Mike Richwine, Acting State Fire Marshal
- Andrew Henning, Chief of State Fire Training
- John Binaski, Chair, Statewide Training and Education Advisory Committee (STEAC)

**Cadre Leadership**
- Jim Eastman, Cadre Lead, Training Specialist III, (RA), CAL FIRE, Deputy Chief (ret.), Sacramento Metro Fire District
- Allison L. Shaw, Editor, California State University, Sacramento
Emergency Vehicle Technician 3

Acknowledgments

Cadre Members

- Lawrence Achen, Training Captain, Central Fire Protection District, Santa Cruz, Vice President, California Fire Mechanics Academy, Inc.

- John Borges, Operations Manager, Burtons Fire, Inc., Modesto

- Anthony Bulygo, Santa Clara County Fire Department (retired), Northern/Southern California Liaison, California Fire Mechanics Association

- Boyd Clegg, San Ramon Valley Fire Protection District (retired), Vacaville Fire Protection District (retired), Instructor, California Fire Mechanics Academy, Inc.

- Doug Link, San Miguel Fire Protection District (retired), Treasurer, California Fire Mechanics Academy, Inc.

- Mark Mclean, Fire Fighter, Los Angeles Fire Department

- Rick Nogueira, Fleet Mechanic, San Ramon Valley Fire Protection District, President, Northern California Fire Mechanics Association

- Marty Schmeltz, Emergency Vehicle Services Advisor, Valley Power Systems, Board Member, California Fire Mechanics Academy, Inc.

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 capstone 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.
Section 1: Definition of Duties

1-1: Definition of Duties for an Emergency Vehicle Technician 3

Authority
- Paragraph 4.1.1
- Paragraph 4.1.2
- Paragraph 4.2
- Paragraph 4.3
- Paragraph 4.4
- Paragraph 4.5
- Paragraph 4.6
- Paragraph 4.7 (Not addressed in the Revision 2020)
- Paragraph 4.8 (Not addressed in the Revision 2020)
- Paragraph 4.9 (Was the old 4.7 in the 2016 version)

Given
1. There are no givens identified for this training standard

Requisite Knowledge and Skills
1. Identify the general knowledge requirements associated with the roles of responsibilities of an EVT 1
2. Identify the general skill requirements associated with the roles and responsibilities of an EVT 1
3. Identify the inspection and preventative maintenance duties associated with chassis systems
4. Identify the inspection and maintenance duties associated with cabs (fixed and tilt) and vehicle bodies
5. Identify the operational checks duties associate with a vehicle’s electronic and electrical systems (low voltage)
6. Identify the inspection, maintenance, and operational testing duties associated with at least one of the following systems: fire pump, auxiliary pump, and tank systems; aerial systems; or specialized (foam, line-voltage electrical, breathing air, auxiliary air) systems

Job Performance Requirements
There are no job performance requirements identified for this training standard.
Section 11: Human Resource Management and Evaluation

11-1: Assigning Tasks or Responsibilities

Authority
- Paragraph 6.2.1

Given
1. A work order
2. An apparatus
3. Work space
4. Required tools, equipment, and parts

Requisite Knowledge and Skills
1. Identify the function, construction, and operation of vehicles and systems
2. Identify required testing
3. Identify required record-keeping and documentation
4. Identify common deficiencies
5. Identify repair procedures
6. Identify testing procedures
7. Identify apparatus safety requirements
8. Identify skill levels of assigned technicians
9. Identify agency priorities
10. Identify available resources
11. Communicate verbally and in writing
12. Evaluate technician performance

Job Performance Requirements
Assign tasks or responsibilities to technicians so that the instructions are complete, clear, and concise; safety considerations are addressed; and the work is completed and within the scheduled time.
11-2: Conducting Individual Technician Training

Authority
• Paragraph 6.2.2

Given
1. An apparatus
2. An assignment
3. A workspace
4. All necessary tools

Requisite Knowledge and Skills
1. Identify the function, operation, and construction of component
2. Identify applicable standards
3. Identify manufacturer specifications
4. Identify recommended procedures
5. Determine the technician’s capability
1. Research, communicate, and deliver training material based on methods and practices
2. Evaluate the results

Job Performance Requirements
Conduct individual training for technicians so that the technician understands the procedure and is able to demonstrate proficiency at the given task.
11-3: Evaluating Technician Performance

Authority
- Paragraph 6.2.3.1

Given
1. A time record
2. Pertinent work orders
3. Evaluation forms

Requisite Knowledge and Skills
1. Identify allowable repair times
2. Describe how to evaluate and analyze technician strengths and weaknesses
3. Identify agency policies and procedures
4. Describe appropriate workplace behavior
5. Identify job descriptions
6. Describe goals of the evaluation program
7. Communicate verbally and in writing
8. Evaluate and document performance

Job Performance Requirements
Provide input on the performance level of the technician so that the abilities and weaknesses of a technician can be determined; required counseling and training can be scheduled to maintain or improve a technician’s proficiency; or an issue can be referred to the next level of supervision.
11-4: Recommending, Specifying, and Enforcing Discipline

Authority
- Paragraph 6.2.3.2

Given
1. Employee history
2. Department SOPs

Requisite Knowledge and Skills
1. Identify agency policies and procedures
2. Demonstrate an awareness of the situation and the individual involved
3. Communicate verbally and in writing
4. Assess employee abilities and attitudes
5. Implement the most effective alternative

Job Performance Requirements
Recommend, specify, and enforce discipline so that the employee is given the guidance necessary to improve or resolve issues.
11-5: Recommending and Enforcing Safety Policies and Procedures

Authority
   • Paragraph 6.2.3.3
2. Office of the State Fire Marshal

Given
1. Agency safety policies and procedures
2. Federal, state, local, and industry standards for workplace safety
3. Safety hazards

Requisite Knowledge and Skills
1. Identify agency safety policies and procedures
2. Identify federal, state, local, and industry standards for workplace safety
3. Identify safety hazards
4. Identify safe practices
5. Identify equipment limitations
6. Identify personal protection devices
7. Communicate verbally and in writing
8. Promote a safe working environment

Job Performance Requirements
Recommend and enforce safety policies and procedures so that workplace safety is monitored and recommendations for deficiencies are documented.
11-6: Monitoring Environmental Safety Compliance

Authority
- Paragraph 6.2.3.4

Given
1. Agency policies and procedures
2. Federal, state, and local environmental regulations
3. Material safety data sheets (MSDS)

Requisite Knowledge and Skills
1. Identify agency policies and procedures
2. Identify federal, state, and local environmental regulations
3. Identify location and content of material safety data sheets (MSDS)
4. Communicate verbally and in writing

Job Performance Requirements
Monitor compliance of applicable environmental regulations so that the workplace is in compliance with all required regulations; and all deficiencies are identified and corrected.
Section 12: Quality Control and Inspection

12-1: Inspecting Completed Vehicles

Authority
- Paragraph 6.3.1.1

Given
1. An apparatus
2. A deficiency list
3. Completed tasks
4. Required license

Requisite Knowledge and Skills
1. Identify the function, construction, and operation of vehicles and systems
2. Identify required testing
3. Identify required record-keeping and documentation
4. Identify common deficiencies
5. Identify repair procedures
6. Identify diagnostic checks and performance testing procedures
7. Identify vehicle safety requirements and confirm that they are diagnostically checked to manufacturer’s specifications
8. Operate apparatus
9. Verify performance of required tests and checks
10. Use diagnostic equipment and tools
11. Communicate verbally and in writing

Job Performance Requirements
Inspect a completed vehicle so that all deficiencies are repaired; documentation is completed; and the vehicle is tested and diagnostically checked to manufacturer specifications.
12-2: Monitoring Outsourced Repairs

Authority
- Paragraph 6.3.1.2

Given
1. A completed vehicle
2. A deficiency list
3. A list of completed tasks

Requisite Knowledge and Skills
1. Identify the function, construction, and operation of vehicles and systems
2. Identify vendor qualifications and limitations
3. Identify required diagnostic checks and performance testing
4. Identify required record-keeping and documentation
5. Identify common deficiencies
6. Identify repair procedures
7. Identify diagnostic checks and performance testing procedures
8. Identify vehicle safety requirements
9. Operate vehicles
10. Verify diagnostic checks and performance tests of equipment and tools identified by manufacturer’s specifications
11. Use diagnostic equipment and tools
12. Communicate verbally and in writing

Job Performance Requirements
Monitor outsourced repairs so that all repairs are verified; and diagnostic checks are completed and documented
Section 13: Equipment and Parts Management

13-1: Monitoring Inventory Levels

Authority
• Paragraph 6.4.1

Given
1. Current inventory
2. Agency equipment lists
3. Manufacturer specification
4. A maintenance schedule
5. Previous repair history
6. Manufacturer parts manuals

Requisite Knowledge and Skills
1. Identify current suppliers
2. Evaluate previous repair history
3. Identify agency and purchase policies
4. Determine current needs
5. Use previous repair history to predict future needs

Job Performance Requirements
Monitor inventory levels within the relevant level of responsibility so that the inventory is maintained at the required levels.
13-2: Ordering Parts

Authority
  • Paragraph 6.4.2

Given
1. A part number or specification and application of part required
2. A purchase order form and procedure
3. A vendor list

Requisite Knowledge and Skills
1. Identify the function, operation, and construction of component
2. Identify applicable standards
3. Identify manufacturer specifications
4. Identify recommended part substitutions
5. Identify parts locations
6. Identify transportation systems
7. Research written and electronic sources and manuals
8. Communicate verbally and in writing

Job Performance Requirements
Order appropriate parts so that the correct part is ordered from the vendor; purchase orders are tracked; and purchase is recorded.
Section 14: Documentation

14-1: Preparing Estimates

Authority
• Paragraph 6.5.1

Given
1. An emergency vehicle
2. Repair history
3. Estimate forms
4. Parts lists
5. Required repair or upgrade hours
6. A calculator

Requisite Knowledge and Skills
1. Identify the function, construction, and operation of emergency response vehicles
2. Identify estimated repair times
3. Identify parts and component costs
4. Identify applicable vehicle standards
5. Estimate and calculate costs and repair times
6. Complete documentation and record-keeping
7. Communicate verbally and in writing

Job Performance Requirements
Prepare an estimate of deficiencies or upgrades to be completed on an emergency vehicle so that the costs are calculated, documented, and communicated.
14-2: Adhering to Repair and Maintenance Schedules

Authority
• Paragraph 6.5.2

Given
1. An emergency vehicle
2. A schedule
3. Forms
4. A repair or maintenance request
5. Current staffing and workload
6. Work estimate
7. Work space availability

Requisite Knowledge and Skills
1. Identify resource availability
2. Identify agency requirements
3. Identify the function, construction, and operation of emergency response vehicles
4. Utilize resources
5. Evaluate requests
6. Project maintenance or repair results

Job Performance Requirements
Adhere to a schedule for maintenance or repair of an emergency vehicle so that required repairs or maintenance can be assigned and completed in accordance with the projected times.
14-3: Documenting Warranty Repairs

Authority
  • Paragraph 6.5.3

Given
1. A repaired vehicle
2. Applicable warranties
3. A deficiency list
4. Technical service bulletins
5. A list of completed tasks

Requisite Knowledge and Skills
1. Identify current warranties
2. Identify technical service bulletins
3. Identify diagnostic checks or performance tests
4. Identify required record-keeping and documentation
5. Identify diagnostic checks or performance testing procedures
6. Identify vehicle safety requirements
7. Identify the function, construction, and operation of emergency response vehicles
8. Identify manufacturer specifications
9. Identify agency policies and procedures
10. Communicate verbally and in writing
11. Comply with the record-keeping requirements of the manufacturer and the authority having jurisdiction

Job Performance Requirements
Document warranty repairs so that all repairs are completed, and diagnostically checked and performance tested if required are verified, and tested; and the warranty claim is processed.
14-4: Creating Work Orders

Authority
- Paragraph 6.5.4

Given
1. An emergency response vehicle
2. An assignment
3. Agency work order forms

Requisite Knowledge and Skills
1. Identify required record-keeping
2. Identify agency record-keeping system
3. Identify previous repair history
4. Identify the function, construction, and operation of emergency response vehicles
5. Apply agency record-keeping system
6. Communicate verbally and in writing
7. Utilize diagnostic skills

Job Performance Requirements
Create work orders so that all work to be performed is documented; all required information is recorded; all necessary information is communicated to the technician(s); and the emergency response vehicle is prepared for repair or maintenance.
14-5: Validating Maintenance Records

Authority
• Paragraph 6.5.5

Given
1. Completed documentation of maintenance records
2. Agency record-keeping policies

Requisite Knowledge and Skills
1. Identify record-keeping and accounting procedures
2. Describe how to analyze statistics
3. Identify agency policy and procedure
4. Recognize, evaluate, analyze, and calculate statistical information, accounting reports, and cost performance reports

Job Performance Requirements
Validate maintenance records so that accurate records are maintained.
Section 15: Apparatus Specifications

15-1: Developing Apparatus Specifications

Authority
   • Paragraph 6.6.1
2. Office of the State Fire Marshal

Given
1. Agency recommendations
2. Agency policies and procedures
3. Applicable NFPA and industry standards

Requisite Knowledge and Skills
1. Identify current quality standards and requirements of the agency, state and local laws and regulations, the American Society of Mechanical Engineers (ASME), the Society of Automotive Engineers (SAE), the Occupational Safety and Health Administration (OSHA), and NFPA for the construction of a fire apparatus
2. Recognize agency guidelines
3. Organize and identify apparatus components based on the needs of the applicable divisions
4. Communicate verbally and in writing

Job Performance Requirements
Develop a specification through review and research of existing fire apparatus so that technical criteria are presented as a completed specification.
# State Fire Training Content

## Code Key

**Blocks**
- G = Given
- RKS = Requisite Knowledge and Skills
- JPR = Job Performance Requirements
- NCTS = New certification training standard

## Certification: Emergency Vehicle Technician

<table>
<thead>
<tr>
<th>CTS</th>
<th>Block</th>
<th>Addition</th>
<th>Justification</th>
<th>Source / Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-1</td>
<td>RKS #2</td>
<td>Added “Describe how to select test, calibration, and diagnostic equipment”.</td>
<td>An EVT has to use be able to select and use the appropriate test, calibration, and diagnostic equipment as part of the inspection process.</td>
<td></td>
</tr>
<tr>
<td>2-1</td>
<td>RKS #9</td>
<td>Added “Use test, calibration, and diagnostic equipment”.</td>
<td>An EVT has to use be able to select and use the appropriate test, calibration, and diagnostic equipment as part of the inspection process.</td>
<td></td>
</tr>
<tr>
<td>2-1</td>
<td>JPR</td>
<td>Added “brake systems” to the list of chassis system components “...auxiliary drive systems, axles, driveline, steering and suspension system, brake systems, wheels, and tires...”.</td>
<td>NFPA 1071 does not address brakes as a separate vehicle system or component. This addition ensures that California EVTs receive adequate brake training.</td>
<td></td>
</tr>
<tr>
<td>2-1</td>
<td>RKS #2</td>
<td>Added “Identify the principles of electricity and operational theory of electronics”.</td>
<td>This originally appeared in CTS 2-3 as part of 4.2.3 but cadre requested relocation to CTS 2-1 because it applies to all chassis systems, not just those in emergency vehicles.</td>
<td></td>
</tr>
<tr>
<td>2-3</td>
<td>JPR</td>
<td>Added “brake systems” to the list of chassis system</td>
<td>NFPA 1071 does not address brakes as a separate vehicle</td>
<td></td>
</tr>
<tr>
<td>CTS</td>
<td>Block</td>
<td>Addition</td>
<td>Justification</td>
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<td></td>
</tr>
<tr>
<td>2-5</td>
<td>JPR</td>
<td>components “...independent suspension systems, all-wheel steering systems, brake systems, secondary braking systems, and interface electronics, and load management systems...”</td>
<td>system or component. This addition ensures that California EVT's receive adequate brake training.</td>
<td></td>
</tr>
<tr>
<td>2-9</td>
<td>RKS #1</td>
<td>Added “manufacturer and the authority having” to the last segment which now reads “and the repairs are documented in accordance with the procedures of the manufacturer and the authority having jurisdiction”.</td>
<td>NFPA oversight. All repairs are done to manufacturer standards and procedures first.</td>
<td></td>
</tr>
<tr>
<td>3-1</td>
<td>RKS #2</td>
<td>Added “Describe how to select test, calibration, and diagnostic equipment”.</td>
<td>An EVT has to use be able to select and use the appropriate test, calibration, and diagnostic equipment as part of the inspection process.</td>
<td></td>
</tr>
<tr>
<td>3-1</td>
<td>RKS #10</td>
<td>Added “Use test, calibration, and diagnostic equipment”.</td>
<td>An EVT has to use be able to select and use the appropriate test, calibration, and diagnostic equipment as part of the inspection process.</td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>CTS</th>
<th>Block</th>
<th>Addition</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-3</td>
<td>RKS #2</td>
<td>Changed “Recognize metals” to “Identify metals used in cabs”</td>
<td>Cadre didn’t feel “metals” was broad enough category of the types of materials encountered in this task.</td>
</tr>
<tr>
<td>3-3</td>
<td>RKS #3</td>
<td>Added “Identify personnel safety restraint systems that may present hazards during cab repair”.</td>
<td>Cadre wanted attention placed on air bag safety considerations.</td>
</tr>
<tr>
<td>3-3</td>
<td>RKS #14</td>
<td>Added “Mitigate personnel safety restraint system hazards”</td>
<td>Cadre wanted attention placed on air bag safety considerations.</td>
</tr>
<tr>
<td>3-5</td>
<td>RKS #4</td>
<td>Added “Identify leak classifications and methods to stop them”.</td>
<td>Original language didn’t include classification.</td>
</tr>
<tr>
<td>3-6</td>
<td>RKS #9</td>
<td>Changed “Recognize metals” to “Identify materials used in cabs and equipment-mounting systems, racks, brackets, and locks”</td>
<td>Cadre didn’t feel “metals” was broad enough category of the types of materials encountered in this task.</td>
</tr>
<tr>
<td>3-8</td>
<td>RKS #3</td>
<td>Changed “Recognize metals” to “Identify materials used in cab tilt systems”</td>
<td>Cadre didn’t feel “metals” was broad enough category of the types of materials encountered in this task.</td>
</tr>
<tr>
<td>3-11</td>
<td>RKS #8</td>
<td>Changed “Recognize metals” to “Identify materials used in cab bodies, compartments, and storage areas”</td>
<td>Cadre didn’t feel “metals” was broad enough category of the types of materials encountered in this task.</td>
</tr>
<tr>
<td>4-1</td>
<td>G #6</td>
<td>Added “Schematics”.</td>
<td>Cadre felt the JPR couldn’t be performed without them but NFPA did not include.</td>
</tr>
<tr>
<td>4-1</td>
<td>G #5</td>
<td>Added “digital” to “including a belt tension gauge and a multimeter”.</td>
<td>Cadre requested clarification to ensure correct equipment.</td>
</tr>
<tr>
<td>4-1</td>
<td>RKS #3</td>
<td>Added “Kirchhoff’s law” to “Ohm’s law”.</td>
<td>Almost everything in vehicles now runs on electronic systems.</td>
</tr>
<tr>
<td>4-1</td>
<td>RKS #4</td>
<td>Added “Describe how to read and interpret schematics”.</td>
<td>NFPA omission. This is a necessary skill to complete the JPR.</td>
</tr>
<tr>
<td>CTS</td>
<td>Block</td>
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<td>----------</td>
<td>---------------</td>
</tr>
<tr>
<td>4-1</td>
<td>RKS #10</td>
<td>Added “Read and interpret schematics”.</td>
<td>NFPA omission. This is a necessary skill to complete the JPR.</td>
</tr>
<tr>
<td>5-3</td>
<td>RKS #16</td>
<td>Replaced “fire flow calculations” with “hydraulic flow calculations”</td>
<td>Fire flow is not accurate.</td>
</tr>
<tr>
<td>5-4</td>
<td>G #1</td>
<td>Added “or agent” to types of tanks listed.</td>
<td>Curriculum should cover tanks with contents other than water and foam.</td>
</tr>
<tr>
<td>5-4</td>
<td>RKS #1</td>
<td>Added “and mounting” to “function, operation, construction of water/foam tanks”.</td>
<td>This is a critical element of this part of the vehicle. The JPR lists it, but the RKS doesn’t address it.</td>
</tr>
<tr>
<td>5-4</td>
<td>RKS #1, #5</td>
<td>Combined “agent” with “water/foam” to address all three types of tanks.</td>
<td>NFPA writing read as if water/foam modified agent and it doesn’t. Agent is also a noun: water/foam/agent.</td>
</tr>
<tr>
<td>5-4</td>
<td>RKS #2</td>
<td>Added &quot;Describe specialized pressure systems&quot;.</td>
<td>This is a very unique system that is becoming more popular but is not yet included in the NFPA standard.</td>
</tr>
<tr>
<td>5-5</td>
<td>G #1</td>
<td>Expanded “water or foam” tank to “water, foam, or agent” tank</td>
<td>California has three tank types and students need to be able to repair all three types.</td>
</tr>
<tr>
<td>5-5</td>
<td>G #5</td>
<td>Added: “Test, calibration, and diagnostic equipment”</td>
<td>NFPA oversight. Selecting and using the equipment was listed in the RKS.</td>
</tr>
<tr>
<td>5-5</td>
<td>RKS #1, #5</td>
<td>Expanded “water” tanks to include “water/foam/agent” tanks.</td>
<td>California has three tank types and students need to be able to repair all three types.</td>
</tr>
<tr>
<td>5-5</td>
<td>JPR</td>
<td>Expanded “water/foam” tanks to include “water/foam/agent” tanks.</td>
<td>California has three tank types and students need to be able to repair all three types.</td>
</tr>
<tr>
<td>5-6</td>
<td>RKS #7, #12</td>
<td>Replaced “fire flow calculations” with “hydraulic flow calculations”.</td>
<td>Fire flow is not accurate.</td>
</tr>
<tr>
<td>6-3</td>
<td>JPR</td>
<td>Added “and NFPA performance standards” to “the aerial device is tested for proper operation”.</td>
<td>Just because it’s operational does not mean it meets minimal requirements. Cadre requested more specificity.</td>
</tr>
<tr>
<td>CTS</td>
<td>Block</td>
<td>Addition</td>
<td>Justification</td>
</tr>
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<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>6-3</td>
<td>RKS #1</td>
<td>Added “and performance” to “Describe the function, construction, and operation of an aerial device”.</td>
<td>Just because it’s operational does not mean it meets minimal requirements. Cadre requested more specificity.</td>
</tr>
<tr>
<td>6-3</td>
<td>RKS #9</td>
<td>Added “and performance” to “Perform operational tests”.</td>
<td>Just because it performs does not mean it meets minimal requirements. Cadre requested more specificity.</td>
</tr>
<tr>
<td>6-3</td>
<td>G #3</td>
<td>Added “NFPA 1911 (current edition)”.</td>
<td>Corresponds to addition in JPR.</td>
</tr>
<tr>
<td>6-4</td>
<td>RKS #6</td>
<td>Added “Describe how to read and interpret schematics”.</td>
<td>This is a critical skill not covered by NFPA.</td>
</tr>
<tr>
<td>6-4</td>
<td>RKS #13</td>
<td>Added “Read and interpret schematics”.</td>
<td>This is a critical skill not covered by NFPA.</td>
</tr>
<tr>
<td>6-4</td>
<td>G #8</td>
<td>Added “Schematics”.</td>
<td>Corresponds to addition in RKS.</td>
</tr>
<tr>
<td>7-2</td>
<td>RKS #2</td>
<td>Added “Describe how to use test, calibration, and diagnostic equipment”.</td>
<td>NFPA listed the skill component, but not the knowledge component. Added for consistency and because it’s necessary.</td>
</tr>
<tr>
<td>7-3</td>
<td>G #1</td>
<td>Replaced “emergency response vehicle” with “apparatus”.</td>
<td>California has foam-proportioning systems on units other than vehicles (portable trailers, etc.).</td>
</tr>
<tr>
<td>7-4</td>
<td>RKS #7</td>
<td>Added “Identify state and local foam flow requirements and restrictions”.</td>
<td>Each jurisdiction has requirements. The individual performing testing is responsible for knowing and abiding by them.</td>
</tr>
<tr>
<td>7-4</td>
<td>RKS #10</td>
<td>Added “in accordance with state and local requirements and restrictions”.</td>
<td>Each jurisdiction has requirements. The individual performing testing is responsible for knowing and abiding by them.</td>
</tr>
<tr>
<td>7-7</td>
<td>G #1</td>
<td>Replaced “emergency response vehicle” with “apparatus”.</td>
<td>California has compressed air foam systems (CAFS) on units other than vehicles (portable trailers, etc.).</td>
</tr>
<tr>
<td>7-7</td>
<td>RKS #4</td>
<td>Added “Identify state and local foam flow requirements and restrictions”.</td>
<td>Each jurisdiction has requirements. The individual performing testing is responsible for knowing and abiding by them.</td>
</tr>
<tr>
<td>CTS</td>
<td>Block</td>
<td>Addition</td>
<td>Justification</td>
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</tr>
<tr>
<td>7-7</td>
<td>RKS #12</td>
<td>Added “in accordance with state and local requirements and restrictions”</td>
<td>Each jurisdiction has requirements. The individual performing testing is responsible for knowing and abiding by them.</td>
</tr>
<tr>
<td>7-8</td>
<td>G #1</td>
<td>Replaced “emergency response vehicle” with “apparatus”.</td>
<td>California has compressed air foam systems (CAFS) on units other than vehicles (portable trailers, etc.).</td>
</tr>
<tr>
<td>7-8</td>
<td>RKS #8</td>
<td>Added “Identify state and local foam flow requirements and restrictions”.</td>
<td>Each jurisdiction has requirements. The individual performing testing is responsible for knowing and abiding by them.</td>
</tr>
<tr>
<td>7-8</td>
<td>RKS #11</td>
<td>Added “in accordance with state and local requirements and restrictions”.</td>
<td>Each jurisdiction has requirements. The individual performing testing is responsible for knowing and abiding by them.</td>
</tr>
<tr>
<td>7-13</td>
<td>G #1</td>
<td>Replaced “emergency response vehicle” with “apparatus”.</td>
<td>California has breathing-air and air purification systems on units other than vehicles (portable trailers, etc.).</td>
</tr>
<tr>
<td>7-14</td>
<td>G #1</td>
<td>Replaced “emergency response vehicle” with “apparatus”.</td>
<td>California has breathing-air compressor systems on units other than vehicles (portable trailers, etc.).</td>
</tr>
<tr>
<td>7-14</td>
<td>G #4</td>
<td>Added “Test, calibration, and diagnostic equipment”.</td>
<td>Required to perform JPR but NFPA didn’t include it.</td>
</tr>
<tr>
<td>7-14</td>
<td>G #5</td>
<td>Added “Tools”.</td>
<td>Required to perform JPR but NFPA didn’t include it.</td>
</tr>
<tr>
<td>8-2</td>
<td>RKS #18</td>
<td>Removed “and SOPS” and added “and the authority having jurisdiction” to “Complete required documentation in accordance with NFPA standards”.</td>
<td>The AHJ outranks the department’s standard operating procedures.</td>
</tr>
<tr>
<td>8-3</td>
<td>NCTS</td>
<td>Added standard for “Inspecting Electronic”</td>
<td>NFPA has a standard for repairing, but not for inspecting.</td>
</tr>
<tr>
<td>CTS</td>
<td>Block</td>
<td>Addition</td>
<td>Justification</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Controls and Instrumentation”</td>
<td>maintaining, or testing. Cadre added to cover critical content.</td>
</tr>
<tr>
<td>8-4</td>
<td>NCTS</td>
<td>Added standard for “Maintaining Electronic Controls and Instrumentation”</td>
<td>NFPA has a standard for repairing, but not for inspecting, maintaining, or testing. Cadre added to cover critical content.</td>
</tr>
<tr>
<td>8-6</td>
<td>NCTS</td>
<td>Added standard for “Testing Electronic Controls and Instrumentation”</td>
<td>NFPA has a standard for repairing, but not for inspecting, maintaining, or testing. Cadre added to cover critical content.</td>
</tr>
<tr>
<td>9-8</td>
<td>G #1</td>
<td>Add “An emergency response vehicle with an aerial device, systems, and related components”.</td>
<td>NFPA oversight. Necessary to complete job performance requirement.</td>
</tr>
<tr>
<td>9-8</td>
<td>RKS #5</td>
<td>Replaced “fire flow calculations” with “hydraulic flow calculations”.</td>
<td>Fire flow is not accurate.</td>
</tr>
<tr>
<td>10-1</td>
<td>G #1</td>
<td>Replaced “emergency response vehicle” with “apparatus”.</td>
<td>California has electrical line voltage systems on units other than vehicles (portable trailers, etc.).</td>
</tr>
<tr>
<td>10-1</td>
<td>RKS #3</td>
<td>Added “Describe the principles of electricity”.</td>
<td>This task cannot be performed without this knowledge.</td>
</tr>
<tr>
<td>10-2</td>
<td>G #1</td>
<td>Replaced “emergency response vehicle” with “apparatus”.</td>
<td>California has electrical line voltage systems on units other than vehicles (portable trailers, etc.).</td>
</tr>
<tr>
<td>10-3</td>
<td>G #1</td>
<td>Replaced “emergency response vehicle” with “apparatus”. Removed “hardwired”.</td>
<td>California has electrical line voltage systems on units other than vehicles (portable trailers, etc.). Not all appliances are hardwired anymore.</td>
</tr>
<tr>
<td>10-3</td>
<td>JPR</td>
<td>Removed “hardwired” from both references to “line voltage appliances [and/or] controls”.</td>
<td>Not all appliances are hardwired anymore.</td>
</tr>
<tr>
<td>11-1</td>
<td>G #2</td>
<td>Replaced “emergency vehicle” with “apparatus”.</td>
<td>California has equipment on units other than vehicles (portable trailers, etc.).</td>
</tr>
<tr>
<td>CTS</td>
<td>Block</td>
<td>Addition</td>
<td>Justification</td>
</tr>
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<td>--------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>11-2</td>
<td>G #1</td>
<td>Added “An apparatus”.</td>
<td>Cadre feels a vehicle or equipment unit it needed for this JPR.</td>
</tr>
<tr>
<td>11-3</td>
<td>RKS #2</td>
<td>Changed “Failure analysis” to “Describe how to evaluate and analyze technician strengths and weaknesses”.</td>
<td>The NFPA language is vague as to who/what is failing and is very negative. Revision mirrors JPR language.</td>
</tr>
<tr>
<td>11-3</td>
<td>RKS #4</td>
<td>Changed “Human behavior” to “Demonstrate an understanding of appropriate behavior in a work environment”.</td>
<td>The NFPA language is vague as to its intent. Cadre requested a more specific skill set.</td>
</tr>
<tr>
<td>11-3</td>
<td>RKS #8</td>
<td>Added “and document”.</td>
<td>There isn’t much value in an evaluation if there isn’t documentation of the evaluation.</td>
</tr>
<tr>
<td>11-5</td>
<td>RKS #8</td>
<td>Added “Promote a safe working environment”.</td>
<td>There were no RKS items that directly referenced this skill.</td>
</tr>
<tr>
<td>11-6</td>
<td>RKS #3</td>
<td>Added “Identify location and content of material safety data sheets” to “MSDS”.</td>
<td>There wasn’t enough information about what to do with the MSDS.</td>
</tr>
<tr>
<td>12-1</td>
<td>G #1</td>
<td>Replaced “A vehicle” with “An apparatus”.</td>
<td>California has equipment on units other than vehicles (portable trailers, etc.).</td>
</tr>
<tr>
<td>15-1</td>
<td>RKS #1</td>
<td>Add “state and local laws and regulations” to a broader segment.</td>
<td>This is a blanket statement to cover anything that applies in California, but not elsewhere.</td>
</tr>
</tbody>
</table>
Errata

Code Key

Blocks
- G = Given
- RKS = Requisite Knowledge and Skills
- JPR = Job Performance Requirements
- NCTS = New certification training standard

Changes
- New text show in underline
- Deleted text shown in strikeout