FIRE APPARATUS DRIVER/OPERATOR—AERIAL

CERTIFICATION TEST DOCUMENTATION BOOKLET

MSU Fire Services Training School
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Fax: (406) 268-3735
Website: http://www.montana.edu/wwwfire

This certification process is accredited by:

International Fire Service Accreditation Congress (IFSAC)
and
National Board on Fire Service Professional Qualifications (Pro Board)

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DRIVER/OPERATOR (AERIAL) TEST
(*PLEASE PRINT LEGIBLY)*

Candidate's Name _____
First **Middle** **Last**

Candidate's Home Address _____

_____

Phone Contact _____ **Secondary Phone Contact** _____

Email _____

Name of Fire Service Organization (FSO) of which candidate is a member:

_____

Mailing Address of Fire Service Organization (FSO) of which candidate is a member:

_____

Name of the Chief of the Fire Service Organization (FSO) of which candidate is a member.

_____

Daytime phone contact for candidate's Chief _____

TEST INSTRUCTIONS (PLEASE READ CAREFULLY!)

A Driver/Operator Candidate has a **12-month period** to complete this test. Once the FSTS administered portion of the test has begun, the FSTS portion must be completed within **6 (six)** months. The testing period begins with the first test date entered and ends with the last test date a skill was demonstrated and recorded.

Notification:
When planning demonstrated ability testing (local testing or FSTS task testing), contact your local FSTS Regional Training Manager and coordinate dates, times, and location of all testing. Training Managers are required to occasionally observe local testing to ensure compliance with accreditation and certification rules.

Reference materials:
Reference materials from any source may be used by the Candidate to complete the locally administered, open-resource portions of the testing process.

Resources:
The FSTS Coaching Package is a vital training tool for instructors teaching the tactical skills. Copies are available through FSTS Regional Managers or the FSTS office. Cited references are available from the FSTS Resource Center.

All answers and signatures in this test booklet must be handwritten and legible.
The Chief Fire Officer (CFO) of the candidate's Fire Service Organization **must** sign the signature block under "Fitness Requirements" and "Facilities and Equipment Compliance" **before any testing begins**.

An FSTS-authorized test proctor must sign off each signature block and enter the date the task was completed for each element. All test administrators must have a Proctor's Affidavit on file with FSTS.

Every signature block must be signed and dated. The dates on locally tested portions must reflect the date the task was performed. The individual evaluating a tested element must be someone other than the Candidate's primary instructor for the task. Original signatures are required. The cited reference associated with each element is the authoritative source for satisfactory performance of a task.

Safety - All the performance elements/objectives shall be performed swiftly, safely, and with competence. Each element/objective shall be demonstrated in its entirety.

Fitness Requirements

The signature of the Chief of the Fire Service Organization is evidence to FSTS that the candidate has met local requirements regarding good physical and mental condition and has a background indicating good moral character. The local chief should ensure that the candidate has an appropriate background and physical and mental condition prior to beginning this test.

Chief Officer's Signature **Date**

Facilities and Equipment Compliance:

The signature of the chief of the Fire Service Organization is evidence to FSTS that the facilities and equipment used for testing follow applicable NFPA Standards.

Chief Officer's Signature **Date**

Signature Verification:

For the purpose of signature verification to sign off in this test booklet I certify my signature as:

Signed:	**Printed Name:**

If you have questions, contact the FSTS at (406) 761-7885 during office hours, or any of the following representatives:

John Culbertson (406) 771-4328 FSTS Office - Great Falls

Brian Dodge	(406) 564-8380	Kalispell
Chris Mork	(406) 581-5315	Helena
Rick Paulsen	(406) 381-2390	Missoula
Troy Petersen	(406) 836-0086	Great Falls
Jerry Prete	(406) 461-2274	Miles City
Lyn Stimpson	(406) 461-4420	Montana City
Claude Weidow	(406) 781-0660	Great Falls

Upon Completion of this Test Documentation Booklet, make a copy for your records, then send to FSTS via certified mail to:

MSU Fire Services Training School
Certification Program
409 14th Street SW–Ste 1,
Great Falls, Montana 59404.

Duration of Certification:

Accredited certifications issued by the Montana Fire Services Training School do not have an expiration date. However, *for purposes of progression* within the FSTS certification system, a certification is recognized for five years from the test completion date. The policy regarding this is part of the Montana Fire Service Professional Qualifications Certification System adopted by the Fire Services Training School Advisory Council states:

304 Duration of Certification

304.1 Certifications issued under this system are recognized for purposes of progression within the system from the test completion date to the date a revised testing process is implemented by FSTS, however, certification will be recognized for progression purposes for a minimum of 5 years from its date of issuance.

304.2 Individuals with certifications which have lapsed under 304.1 are treated as new to the level or system and must be re-tested to the current standard for a given level.

Use of Alternate Resources: If alternate resources beyond those listed in this test document are used, please cite the source using Author, Publisher, Title and or Web Site address (URL/DOI). FSTS reserves right to deny resources.

Definitions and Acronyms - The following definitions and acronyms for the terms indicated are intended for use with the Certification Program.

Approved - Acceptable to the FSTS or their authorized representative.

Authority having jurisdiction - Fire Services Training School (FSTS).

Candidate - The person who has made application for certification.

Define - To describe the basic qualities and principles.

Demonstrate - To show by actual use or simulation.

EAP - Employee Assistance Program

Fire company - Subpart of an FSO to which an individual is assigned.

Fire department - An agency of government charged with primary fire protection responsibility within a city, county, reservation or district.

FSO - Fire service organization.

FSTS Website – http://www.montana.edu/wwwfire

Element – A single item, task or tactic that is tested under this program.

Identify - To physically select, indicate, or explain verbally or in writing, using standard terms recognized by the fire service.

IMS - Incident Management System

May - The term is used to state a permissive use or an alternative method to a specified requirement.

Objective - A goal that is achieved through the attainment of a skill, knowledge, or both, which can be observed or measured.
Qualified - Having satisfactorily completed the requirements of the objectives.

Safely - To perform the objective without unreasonable risk or injury to self, others, apparatus or equipment.

Shall - The term indicates a mandatory requirement.

Swiftly - The time, as determined by the qualified evaluator or FSTS that it takes to perform the element satisfactorily.

Technique - The systematic procedure by which a task is accomplished.

With competence - Possessing the knowledge, skill, and judgment needed to perform indicated objectives satisfactorily.

Locally Tested Portion Administered by FSTS Proctor

11.2 Preventive Maintenance

11.2.1 Perform visual and operational checks on vehicle systems and components.

Candidate will verify the operational status of a fire department vehicle by performing Preventive Maintenance Checks and Services on the following systems/components according to manufacturer's specifications and AHJ policy/procedures. (Resource: IFSTA *Pumping and Aerial Apparatus Driver/Operator, 4th Ed., pp 20-50, 66-70;* IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 265-296)*

(1.) Battery System
- Check in-cab voltmeter (engine not running) voltage should be between 12 and 14 volts.
- Engage starting motor. Verify enough power to start engine.
- Check in-cab voltmeter (engine running) voltage should be between 13 and 16 volts.

(2.) Braking System
- Remove air from air brake system (pump brakes with engine off, master switch on) so that low air alarm sounds and spring brake actuates.
- Verify air brake system builds air within apparatus-specified time.
- Press and hold brake pedal, listen for air leaks.
- Release parking brake, assess air system ability to hold air.
- Verify that system stops building pressure when full.

(3.) Coolant System
- Verify coolant is at "full" level.
- Look in area of cooling system for signs of leaks (corrosion, liquid on ground/around connections, etc.)
- Ensure coolant system drive belts are in place, intact (no frays), no visible slack.
- Inspect coolant system hoses; look for leaks/signs of mechanical insult to hose structure (cracks, rubbing, discoloration, swelling, etc.)
- Ensure coolant gauge functions at operating temperature.

(4.) Electrical System
- Inspect battery connections/cables; ensure connections are snug, free of corrosion and cables are intact without cracks, frays, or signs of rubbing.
- Check chassis lighting: include headlights (high/low beam), turn signals (right/left, front, rear), and running lights.
- Check emergency lighting.
- Check scene lighting; function and mounting system.
- Check compartment/pump panel lighting.

(5.) Fuel
- Verify fuel tank level on dash gauge (>3/4 full at start of shift)
- Ensure fuel tank cap is in place and secure.
- Inspect fuel line from tank to engine (leak-free)

(6.) Hydraulic System (if equipped)
- Check tank level (full at start of shift)
- Ensure tank cap is in place and secure.
- Inspect hydraulic line from tank (leak-free)

(7.) Oil
- Determine oil level with dipstick
- Check for leaks

(8.) Tires
- Check condition of tire/wheel assembly (signs of mechanical insult)
- Check tread depth (within limits/no wear bars showing)

- Check tire resonance (Thump tire with hard instrument; check for tympany/equal quality, pitch, and duration)
- Obtain tire pressures (within mfg.'s limits)

(9.) Steering System
- Check steering wheel free play (amount of steering wheel movement that does not result in front tire motion)
- Verify fluid level (within operating range)
- Check for leaks

(10.) Belts (water pump, air compressor, fan, alternator, etc.)
- Check tightness.
- Verify free of cracks, frays, checks, or signs of excessive wear.

(11.) Tools, appliances, and equipment
- Per department inventory

(12.) Built-In Safety Features
- Per manufacturer

Signed_____ **Date:** _____/_____/_____

11.2.2 Document and report visual and operational checks on vehicle systems and components. Candidate shall complete a vehicle maintenance/inspection form and attach a copy to this test booklet. See the sample checklist located on page 22. (Resource: IFSTA *Pumping and Aerial Apparatus Driver/Operator, 4th Ed., pp 60-61;* IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 47-48, 265-296)*

Signed_____ **Date:** _____/_____/_____

11.3 Driving/Operating

11.3.1(a) Candidate will describe the importance of donning passenger restraint devices and ensuring crew safety**.** (Resource: IFSTA *Pumping and Aerial Apparatus Driver/Operator, 4th Ed., pp 60-61;* IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 306-307)*

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Signed_____ **Date:** _____/_____/_____

11.3.1(b) Candidate will list the common causes of fire apparatus accidents. (Resource: IFSTA *Pumping and Aerial Apparatus Driver/Operator, 4th Ed., pp 82-91;* IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 338-344)*

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Signed_____ **Date:** _____/_____/_____

11.3.1(c) Candidate will describe the effects of liquid surge, braking reaction time, and load factors on vehicle control. (Resource: IFSTA *Pumping and Aerial Apparatus Driver/Operator, 4th Ed., pp 76-77, 91-93;* IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 339-342, 579-584)*

Signed_____ **Date:** _____/_____/_____

11.3.1(d) Candidate will describe the effects of high center of gravity on roll-over potential, general steering reactions, speed, and centrifugal force. (Resource: IFSTA *Pumping and Aerial Apparatus Driver/Operator, 4th Ed., pp 76-77, 89;* IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 341-342)*

Signed_____ **Date:** _____/_____/_____

Practical Driving Exercises

The following maneuvers are locally tested elements performed on a closed course and correspond with NFPA 1010, JPRs 11.3.2-11.3.5. (Resource: NFPA 1010, Annex 11.3.2, 11.3.3, 11.3.4, IFSTA *Pumping and Aerial Apparatus Driver/Operator, 4th Ed.,* pp 84-85; IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 302-323*)

11.3.2 Alley Dock Exercise: Candidate will back a vehicle from a roadway into a space restricted on both right and left sides of the vehicle. Given a pumping apparatus, a spotter, and a restricted space requiring 90-degree right hand and left hand turns from the roadway, the candidate will park the apparatus within the restricted space without striking obstructions or needing to stop and pull forward. (Resource: *IFSTA Pumping and Aerial Apparatus Driver/Operator, 4th Ed.,* pp 84-85; IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 312, 315-316; FSTS Local Testing Guide 2*)

Signed_____ **Date:** _____/_____/_____

11.3.3 Serpentine Driving Exercise: Candidate will maneuver the apparatus around obstructions on a roadway while moving forward and in reverse. Utilizing a pumping apparatus, a spotter, and a roadway with obstructions, the candidate will maneuver the vehicle (forward and in reverse) around the obstacles without striking obstructions and without stopping to change direction. (Resource: *IFSTA Pumping and Aerial Apparatus Driver/Operator, 4th Ed.,* pp 84-85; IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 311-313;* FSTS *Local Testing Guide 2)*

Signed_____ **Date:** _____/_____/_____

11.3.4 Confined Space Turnaround Exercise: Candidate will turn the apparatus 180 degrees within a confined space. Utilizing a pumping apparatus, a spotter, and a roadway that does not allow space for a U-turn, the candidate will conduct a three-point, 180-degree, turnaround without striking obstacles or repeatedly stopping to change direction within the confined space. (Resource: *IFSTA Pumping and Aerial Apparatus Driver/Operator, 4th Ed.,* pp 84-85; IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 311-314;* NFPA 1010, Annex 11.3.4; *FSTS Local Testing Guide 2*)

Signed_____ **Date:** _____/_____/_____

11.3.5 Diminished Clearance Exercise: Candidate will drive the apparatus through an area with restricted horizontal and vertical clearances. Utilizing a pumping apparatus, the candidate will travel through an area of diminishing horizontal and vertical clearances without striking barriers or obstacles. (Resource: *IFSTA Pumping and Aerial Apparatus Driver/Operator, 4th Ed.,* pp 84-85; IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 312-315; FSTS Local Testing Guide 2)*

Signed_____ **Date:** _____/_____/_____

11.3.7 Operate Apparatus Systems and Equipment. Candidate will demonstrate ability to operate fixed systems in accordance with manufacturer's specifications, department policies, and procedures. Equipment includes, but not limited to, generators, lighting systems, cascade systems, tool systems, power reels, and lifting equipment.

Signed_____ **Date:** _____/_____/_____

11.3.7(a) Candidate will list all systems and equipment not specifically addressed elsewhere in this test that were operated in accordance with manufacturer's instructions and applicable departmental policies.

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Signed_____ **Date:** _____/_____/_____

13.1 General
For qualification as Driver/Operator—Aerial, the candidate must meet requirements defined in NFPA 1010, *Standard on Professional Qualifications for Firefighters*, Ch. 6 Firefighter 1, NFPA 1081, Ch. 5 Incipient Facility Fire Brigade Member, or NFPA 1081, Ch. 6, Advanced Exterior Facility Fire Brigade Member.

Attach a copy of the certificate to the back of this test booklet.

13.2 Preventive Maintenance

13.2.1 Operational Check
Candidate has verified operational readiness of an Aerial Apparatus by inspecting systems and components according to departmental policies/procedures and manufacturer's recommendations including the following:

1.) Cable Systems (if applicable)
2.) Aerial device hydraulic systems
3.) Slides and Rollers
4.) Stabilizing Systems
5.) Aerial Device Safety Systems
6.) Breathing Air Systems
7.) Communications Systems

Candidate shall complete a vehicle maintenance/inspection form and attach a copy to this test booklet. See the sample checklist located on page 17-18. (Resource: IFSTA *Pumping and Aerial Apparatus Driver/Operator*, 4th Ed., pp 662-667; IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 266-294, 531, 666-707*)

Signed_____ **Date:** _____/_____/_____

13.3 Operations

13.3.1(a)Aerial Device Deployment

Candidate will provide a written narrative describing the capabilities and limitations of the FSO's Aerial device related to reach, tip load, angle of inclination, and angle from chassis axis. (Resource: *Manufacturer Operating Manual*)

Signed_____ **Date:** _____/_____/_____

13.3.1(b) Aerial Device Deployment

Candidate will provide a written narrative describing the effects of topography on Aerial Device Deployment. (Resource: IFSTA *Pumping and Aerial Apparatus Driver/Operator*, 4th Ed., pp 610-614; IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 523-541*)

Signed_____ **Date:** _____/_____/_____

13.3.1(c) Aerial Device Deployment

Candidate will provide a written narrative describing the effects of ground conditions on Aerial Device Deployment. (Resource: IFSTA *Pumping and Aerial Apparatus Driver/Operator*, 4th Ed., pp 614-615; IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 533-541*)

Signed_____ **Date:** _____/_____/_____

13.3.1(d) Aerial Device Deployment

Candidate will provide a written narrative describing the effects of weather conditions on Aerial Device Deployment. (Resource: IFSTA *Pumping and Aerial Apparatus Driver/Operator*, 4th Ed., pp 640-645; IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 556-558*)

Signed_____ **Date:** _____/_____/_____

13.3.2 Aerial Device Stabilization

13.3.2(a) Candidate will provide a written narrative describing the hydraulic system of the FSO's Aerial Device. (Resource: Manufacturer Operating Manuals; IFSTA *Pumping and Aerial Apparatus Driver/Operator*, 4th Ed., pp 529-536; IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 526, 531*)

Signed_____ **Date:** _____/_____/_____

13.3.3 Aerial Device Positioning

Candidate will provide a written description of the system overrides and hazards of using the overrides applicable to the FSO's Aerial Device. (Resource: Manufacturer Operating Manuals; IFSTA *Pumping and Aerial Apparatus Driver/Operator*, 4th Ed., p 543; IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 563*)

Signed_____ **Date:** _____/_____/_____

13.3.5(a) Elevated Master Stream Operations

Candidate will provide a written narrative explaining the nozzle reaction related to aerial master streams. (Resource: IFSTA *Pumping and Aerial Apparatus Driver/Operator*, 4th Ed., p 639; IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 554-561)*

Signed_____ **Date:** _____/_____/_____

13.3.5(b) Elevated Master Stream Operations

Candidate will provide a written narrative describing the range of operation and weight limitations related to aerial master streams as they apply to the FSO's Aerial Device. (Resource: Manufacturer Operating Manuals; IFSTA *Pumping and Aerial Apparatus Driver/Operator*, *4th Ed., pp 544-548*; IAFC/NFPA *Fire Apparatus Driver Operator, 4th Ed., pp 525-530, 561-563*)

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Signed_____ **Date: _____/_____/_____**

FSTS Tested Portion–Driver/Operator—Aerial Device

Name of Candidate *(last name first)* _____

This page provides documentation for completion of tasks required for Fire Apparatus Driver/Operator Aerial certification.

Each task must be signed off by an FSTS representative. Other signatures will not be accepted.

This booklet must be present on the day of the test. Evaluators must sign prior to leaving the test site.

Road Course

Evaluator_____ **Date**_____

Aerial—Set up and Master Stream

Evaluator _____ **Date**_____

FSTS Testing Criteria:
1: Communications must be accomplished using the 5-Step, positive-message acknowledgment, order model. Examples include: Movement from staging into simulated incident scene, charging a hand-line or master stream.

2: Operate vehicle in compliance with all legal and regulatory requirements.

3: Use a spotter when backing. Communicate with the spotter using a radio.

4: Conduct operations in a manner free of conflict with other traffic and/or pedestrians, and is free of damage to fire department, and other, property or equipment.

5: Structural PPE (NFPA 1970 compliant) shall be worn when working outside the vehicle cab.

APPENDIX

11.2.1 and 13.2.1 Fire Apparatus Preventative Maintenance Checklist

Checked By:				Date:	
Apparatus:		Miles:		Vehicle Hours:	
System	**Action**				**Result**
Battery	Check Voltmeter, engine not running, between 12 and 14 volts				

Oil		Check dip stick, level within operating range Check for leaks	
Coolant		Coolant present in operator coolant level check system at a "full level" Look in area of cooling system for signs of leaks (corrosion, liquid on ground, liquid around connections, etc) Coolant system drive belts in place, intact (no shreds), no visible slack Look at coolant system hoses, look for leaks, any mechanical insult to hose structure, cracks, rubbing, discoloration, swelling	
Fuel		Fuel tank level reading on dash gauge, 3/4 level or above, full at start at shift Fuel tank cap in place and snug Supply route from tank to engine free of leaks	
Electrical		Look at battery connections, connections snug, connections are free of corrosion, cables free of mechanical insult, rubbing, cracked, frayed	
Hydraulic		Tank level full at start at shift (sight gauge) Tank cap in place and snug Supply route from tank and system free of leaks	
Tires		Absence of mechanical insult Tread depth with in specs (no wear bars showing) Thump with hard instrument Air pressure set to apparatus manufacturer specs	
Steering		Slack in steering Fluid level within operating range System free of leaks	
Belts		Free of shreds Free of cracks/checks Fee of slack	
Tools, appliances, and equipment		Per Inventory	
Built-in safety systems		Per apparatus manufacturer specs	
Start Engine		Engine starts quickly on 1st try.	
Battery		Voltage with vehicle running, 13 -16 volts	
Coolant		Coolant gauge rises to operating temperature	
Brake		Remove air from the air brake system so that low air alarm sounds and spring brake actuates. Air brake system builds air, within apparatus specific standard time Press and hold brake pedal, listen for air leaks Release parking brake, assess that air systems holds air Assess that system stops building pressure when full	
Electrical		Chassis lighting functions (headlights L/H, turn signals DS/PS/F/R, DOT lights DS/PS/F/R Emergency lights work Scene lighting works, mounting systems function correctly Compartment/pump panel lighting works	
Cable Systems		Inspect per apparatus manufacturer specs	

Aerial Device Hydraulic Systems	Inspect per apparatus manufacturer specs	
Slides and Rollers	Inspect per apparatus manufacturer specs	
Stabilizing Systems	Inspect per apparatus manufacturer specs	
Aerial Device Safety Systems	Inspect per apparatus manufacturer specs	
Breathing Air Systems	Inspect per apparatus manufacturer specs	
Communication Systems	Inspect per apparatus manufacturer specs	