

Minnesota Fire Service Certification

Fire Apparatus Operator – Aerial

NFPA 1002 - 2017 Edition

Prerequisite – NFPA 1001 Fire Fighter I

A completed application and payment plan are required one week before taking the Fire Apparatus Driver Operation – Aerial Certification test. NFPA 1001 Fire Fighter I is required for FAO-Aerial, however if the candidate does not hold a *current* Firefighter I certification they will be required to complete Station #9 “Communications”. The candidate must have the knowledge and skills as outlined in NFPA 1002, 2017 Edition.

There are many ways to obtain this knowledge such as technical college program, individual fire department training, training organizations, self-study... The Minnesota Fire Service Certification Board does not provide any training nor do we provide examination reviews

Standard: NFPA 1002, 2017 Edition

The questions and skills tested are designed to test the candidate on the knowledge and proficiencies as outlined in NFPA 1002 for Fire Apparatus Driver Operator - Aerial. All questions have been referenced to a specific standard in NFPA 1002.

Reference List (V9.0.1)

The textbooks listed below were used in developing the test questions and the practical exams for the Certification test. The candidate should have knowledge of the information contained in the related books below:

- NFPA 1002, Standard on Fire Apparatus Drive/Operator Professional Qualifications, 2017 Edition
- IFSTA, Pumping and Aerial Apparatus Driver/Operator Handbook, 3rd Edition, 1st Printing
- Jones and Bartlett, Fire Apparatus Driver/Operator, Tiller, and Mobile Water Supply, 2nd Edition

Test:

The test is in two parts, a written test and a skills test. The written test is made up of 100 multiple-choice questions selected at random from a test bank of 396 questions. A score of 70% (adjusted by standard measurement of error) must be achieved in order to achieve a passing score. The Skills Test will consist of 6 to 7 stations where the candidate must demonstrate skills in a number of areas. Candidates will have 100 minutes (1 minute per question) to complete the written test and will be given a reasonable amount of time as determined by the evaluator, to complete the practical skills.

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Test Cost

\$150.00

NOTE: Candidate must supply OSHA approved Protective Equipment.

Re-certification

- Every three years - 48 hours total of a combination of Service Delivery, Task Performance, and/or Training/Education with a minimum of 24 hours of Training/Education.
 - NFPA 1002 (2017 Edition) 1.2.6 Emergency response personnel who drive and operate fire apparatus shall remain current with the general knowledge, skills, and JPRs addressed for each level or position of qualification. Emergency response personnel who drive and operate fire apparatus shall remain current with practices and applicable standards and shall demonstrate competency on an annual basis.
- Re-certification Cost: \$25.00

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Apparatus Driver Operator - Aerial NFPA 1002 2017 Edition



Requirements:

1. A certification for NFPA 1001 Fire Fighter I is required.
2. Completed application form and fee of \$150 is covered.
3. Candidates are required to complete mandatory stations 1, 2, 3, and 4, either 5, 6, or 7 and either 8 or 9. Station 10 is mandatory if the candidate does not hold a current Firefighter I certification.
4. PPE is required (no SCBA).
5. Candidate will be required to provide and operate fire apparatus.
 - a. Your department must provide the apparatus you test on.
6. Candidate shall be licensed to drive all vehicles they are expected to operate.

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STATION 1

AERIAL APPARATUS ROUTINE INSPECTION

Candidate: _____

Evaluator: _____

Tested Standard: NFPA 1002 (2017) 4.2.1, 4.2.2, 6.1.1

Perform visual and operational checks on the systems and components specified in the following list, given a fire department vehicle, its manufacturer's specifications, and policies and procedures of the jurisdiction, so that the operational status of the vehicle is verified, document the visual and operational checks, given maintenance and inspection forms, so that all items are checked for operation and deficiencies are reported, and 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 a fire department aerial apparatus, and policies and procedures of the jurisdiction, so that the operational status of the vehicle is verified.

Objective: Demonstrate the routine inspection of an aerial apparatus.

Deduction Points

Perform Visual and operational checks for the following:

Inspect batteries for corrosion and loose connections	_____5
Inspect braking system operation	_____5
Inspect coolant system hoses and fluid level	_____5
Inspect electrical system for proper voltage	_____5
Inspect fuel level	_____10
Inspect hydraulic fluid level (if applicable)	_____5
Inspect engine oil level	_____10
Inspect tires for proper inflation	_____5
Inspect steering system fluid level and steering wheel play (less than 10 degrees in either direction).	_____5
Inspect belts for excessive wear and proper tension	_____5
Ensure all tools, appliances, and equipment are operational	_____5

Inspect the following:

Any built in safety features for proper operation and condition	_____FAIL
Cable systems if equipped	_____5
Slides and rollers	_____5
Stabilizing systems	_____5
Aerial device hydraulic and safety systems	_____FAIL
Breathing air systems if equipped	_____5
Communications systems	
Continued...	

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STATION 1

AERIAL APPARATUS ROUTINE INSPECTION (CONTINUED)

Recognize system problems, correct and deficiencies according to
department policies, and manufacturers specifications _____5
Document inspection according to department policies and procedures _____5
Verified operational status of vehicle _____5

Total Points Possible 100

Total Deductions _____

Score _____

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STATION 2 OPERATE FIXED SYSTEMS

Candidate: _____

Evaluator: _____

Tested Standard: NFPA 1002 (2017) 4.3.7

Operate all fixed systems and equipment on the vehicle not specifically addressed elsewhere in this standard, given systems and equipment, manufacturer's specifications and instructions, and departmental policies and procedures for the systems and equipment, so that each system or piece of equipment is operated in accordance with the applicable instructions and policies.

Objective: Demonstrate operating fixed systems.

	<u>Deduction Points</u>
Deploy equipment	_____15
Energize or start equipment	_____15
Operate equipment according to manufacturer specs. and department policies and procedures.	_____15
Monitor the equipment for problems	_____10
Correct any equipment problems	_____10
De-energize equipment	_____15
Re-service equipment	_____10
Stow equipment on apparatus	_____10

Total Points Possible 100

Total Deductions _____

Score _____

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STATION 3

POSITION AND STABILIZE AN AERIAL APPARATUS

Candidate: _____

Evaluator: _____

Tested Standard: NFPA 1002 (2017) 6.2.1, & 6.2.2

Maneuver and position an aerial apparatus, given an aerial apparatus, an incident location, a situation description, and an assignment, so that the apparatus is positioned for correct aerial device deployment; and stabilize an aerial apparatus, given a positioned vehicle and manufacturer's recommendations, so that power can be transferred to the aerial device hydraulic system and the device can be deployed.

Objective: Demonstrate positioning and stabilizing of an aerial apparatus.

Deduction Points

Explain:

Capabilities of aerial device, including reach and rated tip loads based on the angle of the inclination of the aerial device. _____ 10

Effects of aerial device angle in relation to vehicle chassis. _____ 10

Effects of topographical and ground conditions on stabilization _____ 10

Determine and maneuver to proper position to complete tactical assignment _____ 10

Activate parking brake and front axle lock (if equipped) _____ 10

Chock wheels _____ FAIL

Transfer hydraulic power from engine to hydraulic system _____ 10

Transfer hydraulic power to the stabilization system _____ 10

Set stabilizer pads _____ 5

Deploy stabilizers and insert pins _____ 5

Ensure apparatus is within manufacturers' operational limitations _____ FAIL

Transfer hydraulic power to aerial device _____ 10

Deploy aerial device _____ 10

Total Points Possible 100

Total Deductions _____

Score _____

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STATION 4 OPERATE AN AERIAL DEVICE

Candidate: _____

Evaluator: _____

Tested Standard: NFPA 1002 (2017) 6.2.3

Maneuver and position the aerial device from each control station, given an incident location, a situation description, and an assignment, so that the aerial device is positioned to accomplish the assignment.

Objective: Demonstrate the operation of an aerial apparatus.

Deduction Points

Identify and explain the following aerial device components:

Aerial device hydraulic system	_____5
Hydraulic pressure relief systems	_____5
Gauges and controls	_____5
Cable systems	_____5
Communications systems	_____5
Electrical systems	_____5
Emergency operating systems	_____5
Locking systems	_____5
Manuel rotation and lowering systems	_____5
Stabilizing systems	_____5
Aerial device safety systems	_____5
System overrides and the hazards of using overrides	_____5
Safe operational limits of the given aerial device	_____5
Explain safety procedures specific to the aerial device	_____5
Check intended path of aerial device for overhead obstructions	_____5
Raise, rotate, and extend aerial device smoothly to position of use	_____5
Aerial device is positioned so it will not rest on target	_____5
Aerial device is locked (if equipped)	_____5
Aerial device is unlocked (if equipped) and maneuvered away from target without striking and objects	_____5
Aerial device is retracted, lowered, and returned to the bedded position	_____5

Total Points Possible 100

Total Deductions _____

Score _____

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STATION 5

AERIAL DEVICE EMERGENCY OPERATIONS

Candidate: _____

Evaluator: _____

Tested Standard: NFPA 1002 (2017) 6.2.4

Lower an aerial device using the emergency operating system, given an aerial device, so that the aerial device is lowered to its bedded position.

Objective: Demonstrate bedding an aerial device using the emergency operating system.

	<u>Deduction Points</u>
Identify and explain the following aerial device components:	
Aerial device hydraulic system	_____5
Hydraulic pressure relief systems	_____5
Gauges and controls	_____5
Cable systems	_____5
Communications systems	_____5
Electrical systems	_____5
Emergency operating systems	_____5
Locking systems	_____5
Manuel rotation and lowering systems	_____5
Stabilizing systems	_____5
Aerial device safety systems	_____5
System overrides and the hazards of using overrides	_____5
Identify the safe operational limits of the given device	_____5
Explain safety procedures specific to the aerial device	_____5
Check intended path of the aerial device for overhead obstructions	_____5
Identify the problem (loss of electrical power or hydraulic power)	_____5
Aerial device is unlocked (if equipped)	_____5
Utilized the emergency power unit, controls, and overrides to:	
Rotate the aerial device to a position above the cradle	_____5
Retract the aerial device to its bedded position	_____5
Lower aerial device to bedded position	_____5

Total Points Possible 100

Total Deductions _____

Score _____

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SKILL STATION 6

OPERATE AN ELEVATED MASTER STREAM

Candidate: _____

Evaluator: _____

Tested Standard: NFPA 1002 (2017 Ed.) 6.2.5

Deploy and operate an elevated master stream, given an aerial device, a master stream device, and a desired flow, so that the stream is effective.

OBJECTIVE: Demonstrate the operation of an aerial device as an elevated master stream.

Deduction Points

Checked waterway position, master stream device, and nozzle	_____10
Connected a water supply to the master stream device	_____10
Checked the intended path of the aerial device for obstructions	_____10
Deployed and positioned the aerial device and master stream device	_____10
Ensured aerial device weight limitations are followed	_____10
Charged the waterway	_____10
Operated the master stream device smoothly to maneuver the fire stream within its range of operation with minimal nozzle reaction	_____10
Closed and drained waterway	_____10
Stowed the master stream device	_____10
Aerial device is returned to the bedded position	_____10

Total Points Possible 100

Total Deductions _____

Score _____

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SKILL STATION 7 PUBLIC ROADWAY DRIVING

Candidate: _____

Evaluator: _____

Tested Standard: NFPA 1002 (2017) 4.3.1, & 4.3.6

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 and,

Operate a vehicle using defensive driving techniques, given an assignment and a fire apparatus, so that control of the vehicle is maintained.

OBJECTIVE: The candidate will demonstrate driving a fire apparatus on a public roadway.

Deduction Points

Explain:

causes of apparatus crashes & operator/driver responsibilities (no seat belts)	_____10
effects of liquid surge, braking reaction time, & load factors on vehicle control	_____5
center-of-gravity on rollover potential, steering reaction, speed, & centrifugal force	_____5
skid avoidance, night driving, and gear patterns	_____5
the use of automatic braking system in wet and dry conditions	_____5
operational limits of the vehicle	_____5
Check and adjust driver's seat, vehicle mirrors, and vehicle controls	_____10
Ensure all occupant restraints are secured before putting vehicle in motion	_____Fail

Maneuver:

vehicle through turns safely	_____5
on roadway and bridges (if applicable) safely	_____5
vehicle through curves safely	_____5
through railroad crossings safely	_____5
upgrades and downgrades safely	_____5

Verify road and bridge clearances and weight limits	_____5
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Operate:

vehicle under adverse environmental or driving surface conditions	_____5
vehicle safely and in accordance with applicable laws and regulations	_____5

Maintain control of the vehicle while accelerating, decelerating, & turning	_____5
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SKILL STATION 7
PUBLIC ROADWAY DRIVING (CONTINUED)

Travel at safe speeds given road/weather/traffic conditions and maintained
safe traveling distances _____5
Identify and maintain awareness of vehicle gauges and instruments _____5

Total Points Possible 100

Total Deductions _____

Score _____

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SKILL STATION 8 OBSTACLE DRIVING

Tested Standard: NFPA 1002 (2017 Edition) Section: 4.3.2, 4.3.3, 4.3.4, 4.3.5 & 4.3.6

Back a vehicle from a roadway into restricted spaces on both the right and left sides of the vehicle, given a fire department vehicle, a spotter, and restricted spaces 3.7 m (12 ft.) in width, requiring 90-degree right-hand and left-hand turns from the roadway, so that the vehicle is parked within the restricted areas without having to stop and pull forward and without striking obstructions. (4.3.2)

Maneuver a vehicle around obstructions on a roadway while moving forward and in reverse, given a fire department vehicle, a spotter for backing, and a roadway with obstructions, so that the vehicle is maneuvered through the obstructions without stopping to change the direction of travel and without striking the obstructions. (4.3.3)

Turn a fire department vehicle 180 degrees within a confined space, given a fire department vehicle, a spotter for backing up, and an area in which the vehicle cannot perform a U-turn without stopping and backing up, so that the vehicle is turned 180 degrees without striking obstructions within the given space. (4.3.4)

Maneuver a fire department vehicle in areas with restricted horizontal and vertical clearances, given a fire department vehicle and a course that requires the operator to move through areas of restricted horizontal and vertical clearances, so that the operator accurately judges the ability of the vehicle to pass through the openings and so that no obstructions are struck. (4.3.5)

Operate a vehicle using defensive driving techniques under emergency conditions, given a fire department vehicle and emergency conditions, so that control of the vehicle is maintained. (4.3.6)

OBJECTIVE: The candidate will, given a Fire Department pumper, perform three of the following maneuvers in a safe manner and in compliance with all state and local laws: 1.) back a vehicle from a roadway into restricted places on both the right and left sides of the vehicle, given a spotter and restricted spaces 12 ft. in width, requiring 90-degree right-hand and left-hand turns from the roadway, so that the vehicle is parked within the restricted areas without having to stop and pull forward and without striking obstacles, 2.) maneuver a vehicle around obstructions on a roadway while moving forward and in reverse, given a spotter for backing and a roadway with obstructions, so that the vehicle is maneuvered through the obstructions without stopping to change the direction of traffic and without striking the obstructions, 3.) turn a vehicle 180 degrees within a confined space, given a spotter for backing, and an area in which the vehicle cannot perform a u turn without stopping and backing up, so that the vehicle is turned 180 degrees without striking obstructions within the given space, 4.) maneuver a vehicle in areas with restricted horizontal and vehicle clearances, given a course with areas of restricted horizontal and vertical clearances, so that the operator accurately judges the ability of the vehicle to pass through the openings and so that no obstructions are struck and 5.) Operate a fire department pumper using defensive driving techniques, so that control of the vehicle is maintained.

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SKILL STATION 8 OBSTACLE DRIVING (CONTINUED)

Competencies:

Backing

1. Back the vehicle into an alley dock from the left
(Criteria: Traffic Observation, Roadway Observation, Signaling, Observation of Spotter, Mirror Usage, No stopping until maneuver is complete, Does not strike course boundaries)
2. Back the vehicle into an alley dock from the right.
(Criteria: Traffic Observation, Roadway Observation, Signaling, Observation of Spotter, Mirror Usage, No stopping until maneuver is complete, Does not strike course boundaries)

Maneuver/Turn/Restricted Clearances:

1. Maneuver the vehicle through a serpentine forward and reverse
(Criteria: Does not hit course boundaries, appropriate speed, Spotter Observation, Mirror Usage)
2. Turning in a confined space, perform an restricted area Y-turn.
(Criteria: Does not hit course boundaries, Stopping, Spotter Observation, Acceleration)

Diminishing Clearances:

1. Drive the vehicle through a diminishing clearance obstacle.
(Criteria: Appropriate speed, does not strike horizontal or vertical boundaries)
2. Drive the vehicle through an offset lane change obstacle.
(Criteria: Appropriate speed, does not strike boundaries, and maintain safe distances)

Emergency Driving:

1. Drive the vehicle safely under simulated emergency conditions
(Criteria: Appropriate speed, Right of way, safe distances, audible and visual signals activated)
2. Drive the vehicle safely through controlled intersection.
(Criteria: Appropriate speed, Right of way, audible and visual signals activated)

General:

1. Operate passenger restraint devices
2. Maintain safe following distances.
3. Maintain control of vehicle while accelerating, decelerating, and turning in all conditions.
4. Proper use of mirrors
5. Use of automotive gauges and controls
6. Operate under adverse environmental or driving surface conditions.

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SKILL STATION 8 OBSTACLE DRIVING (CONTINUED)

Candidate Number _____

Evaluator: _____

Did the candidate, as instructed, demonstrate competency in the following:

Deduction Points

Back the vehicle into an alley dock from the left	_____ 10
Back the vehicle into an alley dock from the right	_____ 10
Maneuver the vehicle through a serpentine forward and reverse	_____ 10
Turning in a confined space/perform a restricted area Y-turn.	_____ 10
Drive the vehicle through a diminishing clearance obstacle.	_____ 10
Drive the vehicle through an offset lane change obstacle.	_____ 10
Drive the vehicle safely under simulated emergency conditions	_____ 10
Drive the vehicle safely through controlled intersection	_____ 10
Operate passenger restraint devices	_____ Fail
Maintain safe following distances	_____ Fail
Maintain control of vehicle while accelerating, decelerating, and turning in all conditions	_____ Fail
Proper use of mirrors	_____ 10
Use of automotive gauges and control.	_____ 10

Total Points Possible 100

Total Deductions _____

Score _____

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SKILL STATION 9 FIRE DEPARTMENT COMMUNICATIONS

Candidate Number _____

Evaluator: _____

Tested Standard: NFPA 1002 (2017 Edition) Section: 4.4.1, 4.4.2, 4.4.3 & 4.4.4

Initiate the response to a reported emergency, given the report of an emergency, fire department SOPs, and communications equipment, so that all necessary information is obtained, communications equipment is operated correctly and the information is relayed promptly and accurately to the dispatch center (4.4.1)

Receive a telephone call, given a fire department phone, so that procedures for answering the phone are used and the caller's information is relayed. (4.4.2)

Transmit and receive messages via the fire department radio, given a fire department radio and operating procedures, so that the information is accurate, complete, clear, and relayed within the time established by the AHJ. (4.4.3)

Activate emergency procedures, given an emergency situation and department SOPs, so that emergency actions can be initiated. (4.4.4)

OBJECTIVE: The candidate, given a scenario; shall demonstrate competencies as detailed below with respect to fire department communication devices and fire department policies and procedures

Note: This station only required for those not holding a current Fire Fighter I Certificate.

Did the candidate, as instructed, demonstrate competency in the following:

	<u>Deduction Points</u>
The ability to operate fire department communications equipment	_____ 10
Correctly relay information	_____ 10
Record information received	_____ 10
Follow fire department procedures for answering nonemergency telephone calls	_____ 10
Follow departmental radio procedures and etiquette for routine traffic	_____ 15
Follow protocol on Emergency traffic	_____ 15
Demonstrate Emergency evacuation signals	_____ 15
The ability to activate emergency procedures in accordance with the department's SOPs	_____ 15

Total Points Possible 100

Total Deductions _____

Score _____