FIRE APPARATUS ENGINEER

RECERTIFICATION TASK BOOK

APRIL 1, 2023

Fire Apparatus Engineer

INTRODUCTION

This task book is the evaluation tool used to validate the member's proficiency in the skills required to complete the Fire Apparatus Engineer recertification program. The National Fire Protection Agency (NFPA) 1002: *Fire Apparatus Driver/Operator Professional Qualifications* (2017 Edition) has specified Job Performance Requirements (JPRs) required by individuals to comply with Chapter 5. JPRs provide an individual completing a task with the necessary data to determine when the task is finished and indicate how well the individual performed.

INITIAL STATE CERTIFICATION PREREQUISITES

All rules relating to the Fire Apparatus Engineer certification can be found in the Joint Committee on Administrative Rules (JCAR) Section 141.306.

1. Current certification as a Fire Service Vehicle Operator.
2. Successful completion of a Fire Apparatus Engineer course (minimum of 40 hours).
3. Passage of the State Written and State Practical Examinations.

RECERTIFICATION PROCESS

Each JPR must be completed at least one time to successfully recertify at this level. Members are encouraged to track additional completions as a way of tracking additional training in this area.

The complete recertification process can be found in JCAR Section 141.390 Recertifications.

REFERENCE LIST

Below is the list of the approved reference material.

- Pumping Apparatus Driver/Operator Handbook, 3rd Edition. IFSTA.
- Fire Apparatus Driver/Operator: Pump, Aerial, Tiller, and Mobile Water Supply, 3rd Edition. Jones & Bartlett Publishing.

Fire Apparatus Engineer

Name	
	First, Middle, Last
Address	
	Street, City, State, Zip
Phone	
Email Address	
Driver's License #	
Department Affiliation	
By my signature as employing Fire Chief, I attest and affirm this individual is an employee of my fire department meeting specifications in 50 Illinois Compiled Statutes (ILCS) 740/2, Illinois Fire Protection Training Act. I attest that this applicant has exhibited experience, and documentation exists supporting the appropriate Illinois Administrative Code. All recertification requirements for this individual have been met, applicable practical skill evolutions have been successfully accomplished, and training records exist substantiating this documentation and are available for review by the Division of Personnel Standards and Education.	
Fire Chief	

Initial Certification Date	
Task Book Started	
Task Book Completed	
Recertification Date	

Fire Apparatus Engineer

PROFICIENCY LOG SHEET

5.1	Apparatus Equipped with Fire Pump - General				Officer Initials
5.1.2	Date		Comments		

5.2	Operations				Officer Initials
5.2.1	Date		Comments		
5.2.2	Date		Comments		
5.2.3	Date		Comments		
5.2.4	Date		Comments		
5.2.5	Date		Comments		
5.2.6	Date		Comments		
5.2.7	Date		Comments		

Fire Chief/Training Officer Signature	Date	Applicant Signature	Date

JOB PERFORMANCE REQUIREMENT	
STANDARD: 5.1.2	**TASK:** General knowledge requirement.
PERFORMANCE OUTCOME: The fire apparatus engineer shall perform the visual and operational checks on the systems and components specified in the following list in addition to those in 4.2.1, so that the operational status of the pumper is verified.	
CONDITIONS: The applicant will complete all elements.	
EQUIPMENT REQUIRED: Given a fire department pumper, its manufacturer's specifications, and policies and procedures of the jurisdiction.	

Step	Skill	Experience	Training
1	Battery(ies) (4.2.1)	☐	☐
2	Braking system (4.2.1)	☐	☐
3	Coolant system (4.2.1)	☐	☐
4	Electrical system (4.2.1)	☐	☐
5	Fuel (4.2.1)	☐	☐
6	Hydraulic fluids (4.2.1)	☐	☐
7	Oil (4.2.1)	☐	☐
8	Tires (4.2.1)	☐	☐
9	Steering system (4.2.1)	☐	☐
10	Belts (4.2.1)	☐	☐
11	Tools, appliances, and equipment (4.2.1)	☐	☐
12	Built-in safety features (4.2.1)	☐	☐
13	Water tank and other extinguishing agent levels (if applicable)	☐	☐
14	Pumping systems	☐	☐
15	Foam systems	☐	☐
16	The fire apparatus engineer demonstrates the ability to use hand tools.	☐	☐
17	The fire apparatus engineer demonstrates the ability to recognize system problems.	☐	☐
18	The fire apparatus engineer demonstrates the ability to correct any deficiency noted according to policies and procedures.	☐	☐

Comments:

Instructor/Fire Apparatus Engineer Signature Date Applicant Signature Date

Fire Apparatus Engineer

JOB PERFORMANCE REQUIREMENT	
STANDARD: 5.2.1	**TASK:** Respond on an apparatus to an emergency scene.
PERFORMANCE OUTCOME: The fire apparatus engineer shall respond on an apparatus to an emergency scene, so that the apparatus is correctly mounted and dismounted and seat belts are used while the vehicle is in motion.	
CONDITIONS: The applicant will complete all elements.	
EQUIPMENT REQUIRED: Given safety equipment as provided by the AHJ.	

Step	Skill	Experience	Training
1	The apparatus is correctly mounted.	☐	☐
2	The apparatus is correctly dismounted.	☐	☐
3	Seat belts are used while the vehicle is in motion.	☐	☐
4	The fire apparatus engineer demonstrates the ability to use each piece of provided safety equipment.	☐	☐

Comments:

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JOB PERFORMANCE REQUIREMENT	
STANDARD: 5.2.2	**TASK:** Establish and operate in work areas at emergency and nonemergency scenes.
PERFORMANCE OUTCOME: The fire apparatus engineer shall establish and operate in work areas at emergency and nonemergency scenes, so that procedures are followed, safety equipment is utilized, protected work areas are established as directed using traffic and scene control devices, and the driver/operator performs assigned tasks only in established, protected work areas.	
CONDITIONS: The applicant will complete all elements.	
EQUIPMENT REQUIRED: Given safety equipment, traffic and scene control devices, emergency and nonemergency scenes, traffic and other hazards, an assignment, and SOPs.	

Step	Skill	Experience	Training
1	Procedures are followed.	☐	☐
2	Safety equipment is utilized.	☐	☐
3	Protected work areas are established as directed using traffic and scene control devices.	☐	☐
4	The driver/operator performs assigned tasks only in established, protected work areas.	☐	☐
5	The fire apparatus engineer demonstrates the ability to use safety equipment.	☐	☐
6	The fire apparatus engineer demonstrates the ability to deploy traffic and scene control devices.	☐	☐
7	The fire apparatus engineer demonstrates the ability to dismount apparatus.	☐	☐
8	The fire apparatus engineer demonstrates the ability to establish and operate in the protected work areas as directed.	☐	☐

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JOB PERFORMANCE REQUIREMENT	
STANDARD: 5.2.3	**TASK:** Connect a fire department pumper to a water supply.
PERFORMANCE OUTCOME: The fire apparatus engineer shall connect a fire department pumper to a water supply as a member of a team, so that connections are tight and water flow is unobstructed.	
CONDITIONS: The applicant will complete all elements.	
EQUIPMENT REQUIRED: Given supply or intake hose, hose tools, and a fire hydrant or static water source.	

Step	Skill	Experience	Training
1	Connections are tight.	☐	☐
2	Water flow is unobstructed.	☐	☐
3	The fire apparatus engineer demonstrates the ability to hand lay a supply hose.	☐	☐
4	The fire apparatus engineer demonstrates the ability to connect and place hard suction hose for drafting operations.	☐	☐
5	The fire apparatus engineer demonstrates the ability to deploy portable water tanks as well as the equipment necessary to transfer water between and draft from them.	☐	☐
6	The fire apparatus engineer demonstrates the ability to make hydrant-to-pumper hose connections for forward and reverse lays.	☐	☐
7	The fire apparatus engineer demonstrates the ability to connect supply hose to a hydrant.	☐	☐
8	The fire apparatus engineer demonstrates the ability to fully open and close the hydrant.	☐	☐

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JOB PERFORMANCE REQUIREMENT	
STANDARD: 5.2.4	**TASK:** Produce effective hand or master streams.
PERFORMANCE OUTCOME: The fire apparatus engineer shall produce effective hand or master streams, so that the pump is engaged, all pressure control and vehicle safety devices are set, the rated flow of the nozzle is achieved and maintained, and the apparatus is continuously monitored for potential problems.	
CONDITIONS: The applicant will complete all elements.	
EQUIPMENT REQUIRED: Given the sources specified in the following list.	

Step	Skill	Experience	Training
1	Pump is engaged.	☐	☐
2	All pressure control and vehicle safety devices are set.	☐	☐
3	The rated flow of the nozzle is achieved and maintained via:		
	(1) Internal tank pressure.	☐	☐
	(2) Pressurized source.	☐	☐
	(3) Static source.	☐	☐
	(4) Transfer from internal tank to external source.	☐	☐
4	The apparatus is continuously monitored for potential problems.	☐	☐
5	The fire apparatus engineer demonstrates the ability to position a fire department pumper to operate at a fire hydrant and at a static water source.	☐	☐
6	The fire apparatus engineer demonstrates the ability to power transfer from vehicle engine to pump.	☐	☐
7	The fire apparatus engineer demonstrates the ability to draft.	☐	☐
8	The fire apparatus engineer demonstrates the ability to operate pumper pressure control systems.	☐	☐
9	The fire apparatus engineer demonstrates the ability to operate the volume/pressure transfer valve (multistage pumps only).	☐	☐
10	The fire apparatus engineer demonstrates the ability to operate auxiliary cooling systems.	☐	☐
11	The fire apparatus engineer demonstrates the ability to make the transition between internal and external water sources.	☐	☐
12	The fire apparatus engineer demonstrates the ability to assemble hose lines, nozzles, valves, and appliances.	☐	☐

Comments:

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JOB PERFORMANCE REQUIREMENT	
STANDARD: 5.2.5	**TASK:** Pump a supply line of 2 ½" or larger.
PERFORMANCE OUTCOME: The fire apparatus engineer shall pump a supply line of 2 ½ in. or larger, so that the proper pressure and flow are provided to the next pumper in the relay.	
CONDITIONS: The applicant will complete all elements.	
EQUIPMENT REQUIRED: Given a relay pumping evolution the length and size of the line and the desired flow and intake pressure.	

Step	Skill	Experience	Training
1	The proper pressure is provided to the next pumper in the relay.	☐	☐
2	The proper flow is provided to the next pumper in the relay.	☐	☐
3	The fire apparatus engineer demonstrates the ability to position a fire department pumper to operate at a fire hydrant and at a static water source.	☐	☐
4	The fire apparatus engineer demonstrates the ability to power transfer from vehicle engine to pump.	☐	☐
5	The fire apparatus engineer demonstrates the ability to draft.	☐	☐
6	The fire apparatus engineer demonstrates the ability to operate pumper pressure control systems.	☐	☐
7	The fire apparatus engineer demonstrates the ability to operate the volume/pressure transfer valve (multistage pumps only).	☐	☐
8	The fire apparatus engineer demonstrates the ability to operate auxiliary cooling systems.	☐	☐
9	The fire apparatus engineer demonstrates the ability to make the transition between internal and external water sources.	☐	☐
10	The fire apparatus engineer demonstrates the ability to assemble hose lines, nozzles, valves, and appliances.	☐	☐

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JOB PERFORMANCE REQUIREMENT	
STANDARD: 5.2.6	**TASK:** Produce a foam fire stream.
PERFORMANCE OUTCOME: The fire apparatus engineer shall produce a foam fire stream, so that proportioned foam is provided.	
CONDITIONS: The applicant will complete all elements.	
EQUIPMENT REQUIRED: Given foam-producing equipment.	

Step	Skill	Experience	Training
1	Proportioned foam is provided.	☐	☐
2	The fire apparatus engineer demonstrates the ability to operate foam proportioning equipment.	☐	☐
3	The fire apparatus engineer demonstrates the ability to connect foam stream equipment.	☐	☐

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Fire Apparatus Engineer

JOB PERFORMANCE REQUIREMENT	
STANDARD: 5.2.7	**TASK:** Supply water to fire sprinkler and standpipe systems.
PERFORMANCE OUTCOME: The fire apparatus engineer shall supply water to fire sprinkler and standpipe systems, so that water is supplied to the system at the correct volume and pressure.	
CONDITIONS: The applicant will complete all elements.	
EQUIPMENT REQUIRED: Given specific system information and a fire department pumper.	

Step	Skill	Experience	Training
1	Water is supplied to the system at the correct volume.	☐	☐
2	water is supplied to the system at the correct pressure.	☐	☐
3	The fire apparatus engineer demonstrates the ability to position a fire department pumper to operate at a fire hydrant and at a static water source.	☐	☐
4	The fire apparatus engineer demonstrates the ability to power transfer from vehicle engine to pump.	☐	☐
5	The fire apparatus engineer demonstrates the ability to draft.	☐	☐
6	The fire apparatus engineer demonstrates the ability to operate pumper pressure control systems.	☐	☐
7	The fire apparatus engineer demonstrates the ability to operate the volume/pressure transfer valve (multistage pumps only).	☐	☐
8	The fire apparatus engineer demonstrates the ability to operate auxiliary cooling systems.	☐	☐
9	The fire apparatus engineer demonstrates the ability to make the transition between internal and external water sources.	☐	☐
10	The fire apparatus engineer demonstrates the ability to assemble hose lines, nozzles, valves, and appliances.	☐	☐

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