

Pumping Apparatus Driver/Operator

SKILL SHEETS



The following skills sheets are meant to be printed double-sided. This allows the candidate to view the instructions and description without viewing the steps.



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FIRE SERVICE TRAINING

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Pumping Apparatus Driver/Operator

Routine test, inspection and servicing functions

Skill Sheet 1

Standard: NFPA 1002 Edition 2017 5.1.2	Task (read aloud): Given an apparatus appropriate to the level of certification, perform and document routine test, inspection, and servicing functions on specified systems and components. Perform the visual and operational checks on the systems and components specific to a pumping apparatus.
5.2.1 Perform the visual and operational checks on the systems and components specified in the following list in addition to those in 4.2.1 (General Driver Operator Skill Sheet 1). Specifically including: (1) Water tank and other extinguishing agent levels. (2) Pumping systems. (3) Foam systems. <i>4.2.1 Perform visual and operational checks on the systems and components specified in the provided 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.</i>	
NFPA Requisite skill 5.1.2 (B) The ability to use hand tools, recognize system problems, and correct any deficiency noted according to policies and procedures.	
Required equipment: Flashlight, pen, clipboard, check sheet either by FST or by jurisdiction (proctor must identify that all items from skill sheet 1 General Driver Operator are present), paper towel/rag, any other hand tools required to make access for checks.	
Required personnel: 0 assistants.	



Pumping Apparatus Driver/Operator

Routine test, inspection and servicing functions

Skill Sheet 1

Standard: 4.3.7, 5.1.1 NFPA 1002, 2014 Edition	Task: Perform and document the readiness inspection of a fire department pumper.				
Performance outcome: Given a fire department pumping apparatus, the necessary hand tools, and using the provided inspection checklist (D02), the candidate shall conduct and document a readiness inspection, not to exceed 25 minutes: (Provide Flashlight, Pen, Clipboard, Paper Towel/Rag)					
NO.	TASK STEPS	FIRST TEST		RETEST	
		Pass	Fail	Pass	Fail
1.	Check water tank for level and leaks in the system				
2.	Check foam tank for level and leaks if applicable				
3.	Exercise pump valves				
4.	Check and clean intake strainer				
5.	Check pump gearbox for proper oil and traces of water				
6.	Chock wheels				
7.	Start apparatus and place apparatus in pump gear				
8.	Operate the pump primer with all pump valves closed. Note vacuum reading				
9.	Operate the changeover valve while operating from tank or other water source (if applicable)				
10.	Check packing glands for excessive leaks, if applicable				
11.	Operate the pump pressure control device(s)				
12.	Check and operate all fixed systems and equipment (if applicable)				
	a. Generator				
	b. Fixed lighting equipment				
	c. Rescue equipment				
	d. Gas-powered tools				
	e. Air compressor/cascade system				
13.	Document inspection and maintenance performed				
14.	Complete skill in allotted 25 minute time frame				
15.	Did the candidate perform the skill safely?				

Evaluator/candidate comments:

Evaluator's signature

Retest evaluator's signature

I acknowledge not passing this skill station.

Candidate's signature



Pumping Apparatus Driver/Operator

Routine tests/inspection checklist—D02

Standard 4.3.7, 5.1.1 NFPA 1002, 2014 Edition

Candidate's name: _____

Date: _____

OK

Needs service

- Check water tank for level and leaks in the system
- Check foam tank for level and leaks if applicable
- Exercise pump valves
- Check and clean intake strainer
- Check pump gearbox for proper oil and traces of water
- Operate the pump primer with all pump valves closed and note vacuum reading
- Operate the changeover valve while operating from tank (if applicable)
- Check packing glands for excessive leaks, if applicable
- Operate the pump pressure control device(s)
- Operate all fixed systems and equipment
- Document inspection and maintenance performed

Vehicle is serviceable **Vehicle is not serviceable**

Comments about items needing service:

Evaluator's name: _____

Date: _____



Pumping Apparatus Driver/Operator

Practical pumping evolution water supply

Skill Sheet 2

Standard: NFPA 1002 Edition 2017 5.2.2, 5.2.3	Task (read aloud): Given an apparatus appropriate to the level of certification, perform the practical pumping evolution as describe and with the restrictions given.
5.2.2 Establish and operate in work areas at emergency and nonemergency scenes, given safety equipment, traffic and scene control devices, emergency and nonemergency scenes, traffic and other hazards, an assignment, and SOP's 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.	
5.2.3 Connect a fire department pumper to a water supply as a member of a team, given supply or intake hose, hose tools, and a fire hydrant or static water source, so that connections are tight and water flow is unobstructed.	
NFPA Requisite skill 5.2.2 (B) The ability to use safety equipment, deploy traffic and scene control devices, dismount apparatus, establish and operate in the protected work areas as directed.	
NFPA Requisite skill 5.2.3 (B) The ability to hand lay a supply hose, connect and place hard suction hose for drafting operations, deploy portable water tanks as well as the equipment necessary to transfer water between and draft from them, make hydrant to pumper hose connections for forward and reverse lays, connect supply hose to a hydrant, fully open and close the hydrant.	
Required equipment: Pumping apparatus with appropriate hoses, appliances, and tools appropriate for water supply operations	
Required personnel: 1 assistant.	



Pumping Apparatus Driver/Operator

Practical pumping evolution water supply

Skill Sheet 2

Standard: 5.2.2, 5.2.3 NFPA 1002, 2017 Edition		Task: Establish and work in a protected area. Demonstrate the ability to utilize a diverse water source for pumping operations			
Performance Outcome: Given a fire department pumping apparatus, the necessary hand tools, hoses, and appliances and with the assistance of 1 firefighter perform either drafting evolution or hydrant evolution as directed by proctor.					
NO.	TASK STEPS	FIRST TEST		RETEST	
		Pass	Fail	Pass	Fail
1.	From the driver's seat remove seatbelt and dismount apparatus safely.				
2.	Prior to or after exiting apparatus deploy traffic and scene control devices				
3.	Establish and operate in the protected work areas.				
4.	Chock wheels				
	Drafting:				
5.	A. Connect and place hard suction hose				
6.	B. Deploy portable water tanks and equipment necessary to transfer water between and draft from them. Or correctly deploy hard suction into static source of water keeping suction off the bottom and low enough to not whirlpool.				
7.	C. Continue to pumping evolution				
	Hydrant:				
8.	A. Make hydrant to pump hose connection.				
9.	B. Fully open the hydrant.				
10.	C. Continue to pumping evolution				
11.	Did the candidate perform the skill safely?				

Evaluator/candidate comments:

Evaluator's signature

Retest evaluator's signature

Candidate's signature

I acknowledge not passing this skill station.



Pumping Apparatus Driver/Operator

Practical pumping evolution

Skill Sheet 2A

<p>Standard: NFPA 1002</p> <p>Edition 2017</p> <p>5.2.4</p>	<p>Task (read aloud): Given an apparatus appropriate to the level of certification, perform the practical pumping evolution as describe and with the restrictions given.</p>
<p>5.2.4 Produce effective hand or master streams (determined by FST), given the sources specified in the following list, 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 monitored for potential problems.</p> <p>1. Internal tank. 2. Pressurized source or Static source (determined by FST) 3. Transfer from internal tank to external source.</p>	
<p>NFPA Requisite Skill 5.2.4 (B) The ability to position a fire department pumper to operate at a fire hydrant and at a static water source, power transfer from vehicle engine to pump, draft, operate pumper pressure control systems, operate the volume/pressure transfer valve (multistage pumps only), operate auxiliary cooling systems, make the transition between internal and external water sources, assemble hose lines, nozzles, valves and appliances.</p>	
<p>Required equipment: Pumping apparatus with appropriate hoses, nozzles, appliances, and tools appropriate for pumping operations.</p>	
<p>Required personnel: 1 assistant.</p>	



Pumping Apparatus Driver/Operator

Practical pumping evolution

Skill Sheet 2A

Standard: 5.2.4 NFPA 1002, 2017 Edition		Task: Using a fire department pumping apparatus, produce an effective hand or master stream given a water source.			
<p>Performance outcome: Given a fire department pumping apparatus, supply hose, attack hose, appropriate fittings, tools, nozzles, firefighters to assist, the candidate shall produce and effective hand or master stream given a specified water source 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. The correct discharge pressure must be within 5 psi, using the algebraic formula: $DP = (CLQ^2) + NP + ALP \pm ELV$. C = Coefficient; L= Length/100; Q = GPM/100; NP = nozzle pressure; APL = appliance loss; and ELV = elevation gain or loss. Evaluator shall specify the GPM flowing and type of nozzle and fire stream, plus any other variable normally encountered by a driver/operator.</p>					
NO.	TASK STEPS	FIRST TEST		RETEST	
		Pass	Fail	Pass	Fail
1.	Candidate calculates appropriate discharge pressure, ± 5 psi (Evaluator chooses fire stream) <ul style="list-style-type: none"> A. Hand line (minimum 100' of 1 1/2" or larger hoses) B. Wyed pair of hand lines (minimum 100' of 2 1/2" hoses wyed to a pair of attack lines a minimum 100' of 1 1/2" or 1 3/4" hose) C. Master stream (minimum 100' of 2 1/2" or larger attack line) 				
2.	Assemble and direct assembly of hose lines, nozzles, valves and appliances				
3.	Makes appropriate connections				
4.	Operates power transfer from vehicle engine to engage pump				
	Drafts (static source evolution)				
5.	A. Prime pump				
6.	B. Obtain draft				
7.	C. Operates pump pressure control system(s)				
	Hydrant				
	A. Opens tank to pump valve				
	B. Transitions from tank water to pressurized source (pressurized source evolution)				
	C. Operates the volume/pressure transfer valve (multistage pumps only)				
8.	Monitors discharge pressure and refills water tank (if possible)				
9.	Operates auxiliary cooling systems				
10.	Completes skill without creating a water hammer or pump cavitation				
11.	Did the candidate perform the skill safely?				

Evaluator/candidate comments:

Evaluator's signature

Retest evaluator's signature

Candidate's signature

I acknowledge not passing this skill station.



Pumping Apparatus Driver/Operator

Practical pumping evolution relay pumping

Skill Sheet 2B

<p>Standard: NFPA 1002</p> <p>Edition 2017</p> <p>5.2.5</p>	<p>Task (read aloud): Given an apparatus appropriate to the level of certification, perform the practical pumping evolution as describe and with the restrictions given.</p>
<p>5.2.5 Pump a supply line of 2 ½” or larger, given a relay pumping evolution the length and size of the line and the desired flow and intake pressure, so that the correct pressure and flow are provided to the next pumper in the relay</p>	
<p>NFPA Requisite Skill 5.2.5 (B) The ability to position a fire department pumper to operate at a fire hydrant and at a static water source, Power transfer from vehicle engine to pump, draft, operate pumper pressure control systems, operate the volume/pressure transfer valve (multistage pumps only), Operate auxiliary cooling systems, make the transition between internal and external water sources, assemble hose lines, nozzles, valves and appliances.</p>	
<p>Required equipment: Pumping apparatus with appropriate hoses, nozzles, appliances, and tools appropriate for pumping operations.</p>	
<p>Required personnel: 1 assistant.</p>	



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Pumping Apparatus Driver/Operator

Practical pumping evolution relay pumping

Skill Sheet 2B

Standard: 5.2.4 NFPA 1002, 2017 Edition		Task: Using a fire department pumping apparatus, produce an effective hand or master stream given a water source.			
<p>Performance Outcome: Given a fire department pumping apparatus, supply hose, and the length and size of a pre-laid relay line (2 ½” or larger), appropriate fittings, tools, firefighters to assist, and the desired flow and intake pressure, the candidate shall produce and maintain an effective water supply relay to an attack pumper, given a specified water source so that the pump is engaged, all pressure control and vehicle safety devices are set, the correct pressure and flow is maintained, and the apparatus is continuously monitored for potential problems. The correct discharge pressure must be within 5 psi, using the algebraic formula: DP = (CLQ²) + NP + ALP ± ELV. C = Coefficient; L= Length/100; Q = GPM/100; NP = nozzle pressure; APL = appliance loss; and ELV = elevation gain or loss. Evaluator shall specify the GPM, length of relay line, attack pumper intake pressure, plus any other variable normally encountered by a driver/operator.</p>					
NO.	TASK STEPS	FIRST TEST		RETEST	
		Pass	Fail	Pass	Fail
1.	Candidate calculates appropriate discharge pressure, ± 5 psi (Evaluator chooses Line size and distance to next pumper)				
2.	Assemble and direct assembly of hose lines, nozzles, valves and appliances				
3.	Makes appropriate connections				
4.	Operates power transfer from vehicle engine to engage pump				
	Drafts (static source evolution)				
5.	A. Prime pump				
6.	B. Obtain draft				
7.	C. Operates pump pressure control system(s)				
	Hydrant				
8.	A. Opens tank to pump valve				
9.	B. Transitions from tank water to pressurized source (pressurized source evolution)				
10.	C. Operates the volume/pressure transfer valve (multistage pumps only)				
11.	D. Monitors discharge pressure and refills water tank (if possible)				
12.	Operates auxiliary cooling systems				
13.	Completes skill without creating a water hammer or pump cavitation				
14.	Did the candidate perform the skill safely?				

Evaluator/candidate comments:

Evaluator's signature

Retest evaluator's signature

Candidate's signature

I acknowledge not passing this skill station.



Pumping Apparatus Driver/Operator

Practical pumping evolution pumping foam

Skill Sheet 2C

Standard: NFPA 1002 Edition 2017 5.2.6	Task (read aloud): Given an apparatus appropriate to the level of certification, perform the practical pumping evolution as describe and with the restrictions given.
5.2.6 Produce a foam fire stream, given foam-producing equipment, so that properly proportioned foam is provided	
NFPA Requisite Skill 5.2.6 (B) The ability to operate foam proportioning equipment. Connect foam stream equipment.	
Required equipment: Pumping apparatus with appropriate hoses, nozzles, appliances, and tools appropriate for pumping operations.	
Required personnel: 1 assistant.	



Pumping Apparatus Driver/Operator

Practical pumping evolution pumping foam

Skill Sheet 2C

Standards: 5.2.3 NFPA 1002, 2014 Edition		Task: Produce a foam fire stream so that properly proportioned foam is delivered.			
Performance Outcome: Given a fire department pumping apparatus, foam concentrate, foam eductor or apparatus mounted foam system, foam nozzle and other related equipment, hose line, and a hose team, the candidate will assemble a foam layout appropriate for the type of concentrate being used. The candidate will deliver properly proportioned foam and clean the system at the completion of the evolution.					
NO.	TASK STEPS	FIRST TEST		RETEST	
		Pass	Fail	Pass	Fail
1.	Verify correct eductor (or proportioner) and nozzle gallonage				
2.	Set concentrate percentage				
3.	Assemble a foam layout appropriate for the type of concentrate being used				
4.	Set appropriate pump pressure for foam layout				
5.	Deliver properly proportioned foam				
6.	Clean or flush system when complete				
7.	Complete skill without creating a water hammer or pump cavitation				
8.	Did the candidate perform the skill safely?				

Evaluator/candidate comments:

Evaluator's signature

Retest evaluator's signature

Candidate's signature

I acknowledge not passing this skill station.



Pumping Apparatus Driver/Operator

Practical pumping evolution pumping to sprinkler or standpipe

Skill Sheet 2D

Standard: NFPA 1002 Edition 2017 5.2.7	Task (read aloud): Given an apparatus appropriate to the level of certification, perform the practical pumping evolution as describe and with the restrictions given.
5.2.7 Supply water to fire sprinkler and standpipe systems, given specific system information and a fire department pumper, so that water is supplied to the system at the correct volume and pressure.	
NFPA Requisite Skill 5.2.7 (B) The ability to position a fire department pumper to operate at a fire hydrant and at a static water source. Power transfer from vehicle engine to pump. Draft. Operate pumper pressure control systems, Operate the volume/pressure transfer valve (multistage pumps only). Operate auxiliary cooling systems. Make the transition between internal and external water sources. Assemble hose line, nozzles, valves and appliances.	
Required equipment: Pumping apparatus with appropriate hoses, nozzles, appliances, and tools appropriate for pumping operations.	
Required personnel: 1 assistant.	



Pumping Apparatus Driver/Operator

Practical pumping evolution pumping to sprinkler or standpipe

Skill Sheet 2D

Standard: 5.2.4 NFPA 1002, 2014 Edition		Task: Supply water to fire sprinkler and standpipe systems given a water source.			
<p>Performance Outcome: Given a fire department pumping apparatus, specific system information, a minimum of 100 feet of supply hose (2 ½" or larger), the candidate shall produce and maintain an effective water supply to a sprinkler or standpipe system, given a specified water source so that the pump is engaged, all pressure control and vehicle safety devices are set, the correct pressure and flow is maintained, and the apparatus is continuously monitored for potential problems so that water is supplied to the system at the correct volume and pressure.. The correct discharge pressure must be within 5 psi, using the algebraic formula: DP = (CLQ²) + S for sprinkler systems or DP = (CLQ²) + NP + ALP + S ± ELV for standpipes. C = Coefficient; L= Length/100; Q = GPM/100; NP = nozzle pressure; APL = appliance loss; S = sprinkler connection pressure or S = standpipe; and ELV = elevation gain or loss. Evaluator shall specify hose lay, the GPM flowing, type of nozzle and fire stream plus any other variable normally encountered by a driver/operator.</p>					
NO.	TASK STEPS	FIRST TEST		RETEST	
		Pass	Fail	Pass	Fail
1.	Candidate calculates appropriate discharge pressure, ± 5 psi (Evaluator specifies type of system) A. Sprinkler system B. Standpipe system				
2.	Assemble and direct assembly of hose lines, nozzles, valves and appliances				
3.	Makes appropriate connections				
4.	Operates power transfer from vehicle engine to engage pump				
	Drafts (static source evolution)				
5.	A. Prime pump				
6.	B. Obtain draft Establishes water supply				
7.	C. Operates pump pressure control system(s)				
	Hydrant				
8.	A. Opens tank to pump valve				
9.	B. Transitions from tank water to pressurized source (pressurized source evolution)				
10.	C. Operates the volume/pressure transfer valve (multistage pumps only)				
	Operates auxiliary cooling systems				
11.	Monitors discharge pressure and refills water tank (if possible)				
12.	Completes skill without creating a water hammer or pump cavitation				
13.	Did the candidate perform the skill safely?				

Evaluator/candidate comments:

Evaluator's signature

Retest evaluator's signature

Candidate's signature

I acknowledge not passing this skill station.