



# Fire Protection Training

Procedures Handbook 4300

PUMPING

**TOPIC:** HOW TO PUMP FROM HYDRANT, CDF ENGINE MODEL #9 OR #11

**TIME FRAME:** :30

**LEVEL OF INSTRUCTION:** Level II

**BEHAVIORAL OBJECTIVE:**

*Condition:* A CDF Model #9 or #11 engine with a full tank of water, a predetermined engine pressure of 150 PSI and the following items and conditions: Tank suction valve open, tank fill valve closed, suction inlet valve closed, 100 foot length of 1 ½" or 1 ¾" hose with nozzle attached laying on the ground, a 20 foot section of 2 ½" soft suction hose, a spanner wrench, and a hydrant wrench.

*Behavior:* The student will: Spot the engine at the hydrant, set the spring brake, chock the engine in accord with CDF policy, start the pump, connect the discharge hose to an 1 ½" discharge outlet, apply an uninterrupted stream of water to a simulated fire and change over from using the tank as a water source to using the hydrant as a water source. After completing this evolution the student will then return the apparatus to its original condition.

*Standard:* With a minimum of 70% accuracy, within 3 minutes and 30 seconds without relief valve. 3 minutes and 45 seconds with relief valve, according to the job breakdown.



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## ***MATERIALS NEEDED:***

- One (1) CDF Model #9 or #11 engine with a full tank of water
- One (1) 100 feet of 1 ½" or 1 ¾" hose
- One (1) 1 ½" nozzle with shut off
- One (1) 20' length of 2 ½" soft suction hose
- One (1) Spanner wrench
- One (1) Hydrant wrench
- One (1) Stop watch
- One (1) Score sheet per student
- One (1) Performance examination test cover page
- Two (2) Red pens for scoring
- One (1) Clipboard
- One (1) Tally sheet

## ***REFERENCES:***

- Vehicle Operation and Maintenance Guide, (CDF Handbook 6804)

## ***PREPARATION:***

It is standard operating procedure in most municipal fire departments to establish adequate water supplies by using a hydrant system. The ability to initiate a fire stream with tank water and switch over to the hydrant system, without interrupting the fire stream, is a basic engine operator skill.



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## OPERATIONS

## KEY POINTS

1. Spot engine at hydrant

1a. Wheels at 45° angle to curb

b. Place engine to avoid kinks in soft suction

c. Place engine to avoid water stream from hydrant

2. Shift transmission to neutral

3. Set spring brake

### TIME START

4. Set engine idle

4a. At 1200 RPM ( $\pm$  200 RPM)

5. Set chock blocks

5a. In accord with CDF policy

b. Failure to set chock blocks properly will be cause for failing the examination

c. Use gloves

6. Start pump engine

6a. At pump control panel

7. If equipped with a relief valve, turn 4-way valve

7a. To "ON" position

8. Adjust pump panel throttle

8a. To indicate 100 PSI on pump pressure gauge

b.  $\pm$  20 PSI

9. Connect discharge hose

9a. To 1 ½" discharge valve

b. 1 ½" - 1 ¾" hose

10. State "Water coming"

10a. Loudly

11. Open discharge valve

11a. Slowly

b. Completely

12. Adjust pump panel throttle

12a. To indicate 150 PSI on pump pressure gauge

b.  $\pm$  20 PSI



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## OPERATIONS

## KEY POINTS

- | OPERATIONS   | KEY POINTS   |
|--|--|
| 13. If equipped with pressure relief valve, set relief valve | 13a. At 150 PSI ( $\pm$ 20 PSI)  |
| 14. Remove equipment from engine                             | 14a. Soft suction hose<br>b. Hydrant wrench<br>c. Spanner Wrench   |
| 15. Uncap hydrant  | 15a. Using hydrant wrench  |
| 16. Open hydrant   | 16a. Counter-clockwise<br>b. Slowly<br>c. Completely<br>d. Until water stream clears<br>e. Using hydrant wrench                                    |
| 17. Close hydrant  | 17a. Clockwise<br>b. Slowly<br>1. Prevent water hammer<br>c. Completely<br>d. Using hydrant wrench   |
| 18. Unroll soft suction hose                                 | 18a. At hydrant  |
| 19. Connect soft suction hose                                | 19a. To hydrant<br>b. To suction inlet valve   |
| 20. Open hydrant   | 20a. Using hydrant wrench<br>b. Slowly<br>c. Completely<br>d. Counter-clockwise<br>e. Removing any kinks in soft suction hose that may affect flow |



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## OPERATIONS

## KEY POINTS

21. Open suction inlet valve and adjust pump throttle simultaneously

21a. Slowly

b. Completely

c. If prime is lost, open suction inlet valve completely, immediately

d. Suction drain or primer may be used to exhaust air from the system

e. To maintain 150 PSI (+/- 20 PSI)

22. Close tank suction valve and adjust pump throttle

22a. To maintain 150 PSI on pump pressure gauge

b. ( $\pm$  20 PSI)

TIME STOP

Student raises hands to indicate completion of timed portion of examination

Failure to maintain an effective fire stream (150 PSI  $\pm$  20 PSI) will be cause for failing the examination

23. State "Shut down"

23a. Loudly

24. Close discharge valve

24a. Slowly

1. Prevent water hammer

b. Completely

25. Adjust pump panel throttle

25a. Slowly

b. To idle

c. Approximately 30 seconds

26. If equipped with a pressure relief valve, turn 4-way valve switch

26a. To "OFF" position

27. Shut off pump

28. Open tank fill valve

28a. To fill tank

29. Close tank fill valve

29a. Slowly

b. Completely



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## OPERATIONS

## KEY POINTS

30. Close hydrant

30a. Slowly

1. Prevent water hammer
  - b. Completely
  - c. Clockwise
  - d. Using hydrant wrench

31. Open tank suction valve

31a. Slowly

1. Relieves pressure in soft suction hose
  - b. Completely

32. Close suction inlet valve

32a. Completely

33. Disconnect soft suction hose

33a. From hydrant

- b. From suction inlet valve

34. Replace hydrant cap

34a. Wrench tight

35. Replace suction inlet cap

35a. Hand tight

36. Return equipment to engine

36a. Soft suction

1. Drained and rolled
- b. Hydrant wrench
  1. To brass compartment
- c. Spanner wrench
  1. To brass compartment

37. Disconnect discharge hose

38. Replace discharge valve cap

38a. Hand tight

39. Return chock blocks

39a. To proper place

40. Return main engine to idle

41. Return engine

41a. To starting point



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## ***APPLICATION:***

The student will practice skills until proficient.

## ***EVALUATION:***

A performance examination.

## ***ASSIGNMENT:***

To be determined by instructor(s).



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