

Firefighter II, Mod B
Water Supply

FIREFIGHTER II MOD B

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2-12 Water Supply

- 2-12.1 Identify the guidelines to follow when deploying a portable water tank. (3-3.14)
- 2-12.2 Identify the equipment necessary for the transfer of water between portable water tanks. (3-3.14)
- 2-12.3 Identify the guidelines to follow when loading and offloading tankers/tenders on mobile water supply apparatus. (3-3.14)
- 2-12.4 Identify the water distribution system and other water sources in the local community. (3-3.14)
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- 2-12.10 Identify the procedure for connecting a supply hose to a hydrant and fully open and close the hydrant. (3-3.14)
- 2-12.11 Identify the procedure for hydrant to pumper hose connections for forward and reverse hose lays. (3-3.14)
- 2-12.12 Identify the procedure assembling and connecting the equipment necessary for drafting from a static water supply source. (3-3.14)
- 2-12.13 Identify the procedure for the deployment of a portable water tank. (3-3.14)
- 2-12.14 Identify the procedure for assembling the equipment necessary for the transfer of water between portable tanks. (3-3.14)
- 2-12.15 **Demonstrate connecting a supply hose to a hydrant and fully open and close the hydrant. (3-3.14(b))**
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- 2-12.17 Demonstrate assembling and connecting the equipment necessary for drafting from a static water supply source. (3-3.14(b))**
- 2-12.18 Demonstrate the deployment of a portable water tank. (3-3.14(b))**
- 2-12.19 Demonstrate assembling the equipment necessary for the transfer of water between portable tanks. (3-3.14(b))**

REFERENCES:

IFSTA, Essentials, 4th ed., Chapter 10.

Delmar, Firefighter's Handbook, copyright 2000, Chapter 18

Jones & Bartlett, Fundamentals of Fire Fighting Skills, 1st ed., Chapters 15 & 16

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2-12 WATER SUPPLY

- I. Identify the guidelines to follow when deploying a portable water tank. **2-12.1 (3-3.14)**
 - A. Place heavy tarp on ground to protect liner.
 - B. Position tanks to permit access from multiple directions.
 - C. Position tank drain downhill, if possible.

- II. Identify the equipment necessary for the transfer of water between portable water tanks. **2-12.2 (3-3.14)**
 - A. Heavy tarp
 - B. Portable tank
 - C. Low level strainer
 - D. Hard suction
 - E. Jet siphon if multiple tanks will be used.

- III. Identify the guidelines to follow when loading and offloading tankers/tenders on mobile water supply apparatus. **2-12.3 (3-3.14)**
 - A. Loading
 - 1. Use best hydrant or fill site.
 - 2. Use large or multiple hoselines
 - 3. Use pumper, if needed, for adequate flow

 - B. Off loading
 - 1. Position portable tankers/tenders to permit more than one tanker to dump.
 - 2. Provide adequate personnel so tanker driver does not have to exit cab.
 - 3. Select site so vehicles do a minimum of backing.

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- IV. Identify the water distribution system and other water sources in the local community. **2-12.4 (3-3.14)**
- A. Source of supply
1. Types
- a. Surface
- 1) Rivers
- 1) Lakes
- 2) Reservoirs
- 3) Swimming pools
- b. Ground water
- 1) Water wells
- 2) Water producing springs
- V. Identify the following parts of a water distribution system: **2-12.5 (3-3.14)**
- A. Primary feeders **2-12.5.1**
1. Definition: Large pipes (mains), with relatively widespread spacing, that convey large quantities of water to various points of the system for local distribution to the smaller mains.
- B. Secondary feeders **2-12.5.2**
1. Definition: Network of intermediate-sized pipes that reinforce the grid within the various loops of the primary feeder system and aid the concentration of the required fire flow at any point.
- C. Distributors **2-12.5.3**
1. Definition: Grid arrangement of smaller mains serving individual fire hydrants and blocks of consumers.

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- VI. Identify the operation of the following hydrants: **2-12.6 (4-5.4)**
- A. Dry barrel hydrant **2-12.6.1**
1. Common in climates where freezing weather is expected.
 2. Hydrant is empty when closed and not in use.
 3. Drain on hydrant is open, when not in use, to remain empty.
 4. Valve, holding back water, is below frost line.
 5. Usually constructed of cast iron, but important working parts usually made of bronze.
- B. Wet barrel hydrant **2-12.6.2**
1. May be used only in areas where no freezing weather is expected.
 2. Hydrant is always filled with water.
 3. May have one or more compression valves.
 1. Usually constructed of cast iron, but important working parts usually made of bronze.
- C. Dry hydrant **2-12.6.3**
1. Is a connection point for drafting from a static water source
 2. Pipe system with a pumping suction connection at one end and strainer at the other
 3. Used primarily in rural areas with no water system
- VII. Identify how the following conditions reduce hydrant effectiveness: **2-12.7 (3-3.14)**
- A. Obstructions to use of hydrants **2-12.7.1**
1. Sign posts
 2. Utility poles
 3. Fences
 4. Parking zones
 5. Landscaping
- B. Direction of hydrant outlets to suitability of use **2-12.7.2**
1. Facing proper direction for pumper-to-hydrant connections
 2. Sufficient clearing between the outlets and ground for hose connections.

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- C. Mechanical damage **2-12.7.3**
 - D. Rust and corrosion **2-12.7.4**
 - E. Failure to open the hydrant fully **2-12.7.5**
 - F. Susceptibility to freezing **2-12.7.6**
- VIII. Identify apparatus, equipment, and appliances required to provide water at rural locations by relay pumping. **2-12.8 (3-3.14)**
- A. Requirements
 - 1. Water supply must be capable of maintaining the desired volume of water required for the duration of the incident.
 - 2. Relay must be established quickly enough to be worthwhile.
 - B. Number of pumpers needed and distance between pumpers is determined by:
 - 1. Volume of water needed
 - 2. Distance between water source and fire scene
 - 3. Hose size available
 - 4. Amount of hose available
 - 5. Pumper capacities
 - C. Knowledge of correct friction loss
 - D. Supplemental equipment:
 - 1. Strainers
 - 2. Pumps
 - 3. Suction hose
 - 4. Flotation device
- IX. Identify apparatus, equipment and appliances required to provide water at rural locations by a mobile water supply apparatus shuttle. **2-12.9 (3-3.14)**
- A. Key components
 - 1. Attack apparatus at the fire (dump site)
 - 2. Fill apparatus at fill site
 - 3. Mobile water supply apparatus (tankers/tenders) to haul water from fill site to dump site
 - 4. Portable tank(s)
 - 5. Tarps
 - 6. Low level intake devices (strainers)
 - 7. Jet siphons (if multiple tanks will be used)

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- X. Identify the procedure for connecting a supply hose to a hydrant and fully open and close the hydrant. **2-12.10 (3-3.14)**
- A. Small intake hose-hydrant connection
1. Remove intake hose(s), hydrant wrench and other required tools from pumper.
 2. Unroll the hose(s)
 3. Connect the hose(s) to the pumper
 4. Place the hydrant wrench on the hydrant valve stem operating nut with the handle pointing away from the outlet(s)
 5. Remove the appropriate cap(s)
 6. Open and then close the hydrant to make sure there is water and nothing is blocking the discharge(s)
 7. Connect the hose(s) to the hydrant, using any adapters that may be necessary
 8. Fully open the hydrant
- B. Soft sleeve hydrant connection
1. Remove intake hose, hydrant wrench and other required tools from the pumper
 2. Unroll the hose
 3. Connect the hose to the pumper
 4. Place the hydrant wrench on the hydrant valve stem operating nut with the handle pointing away from the outlet
 5. Remove the appropriate cap
 6. Open and then close the hydrant to make sure there is water and nothing is blocking the discharge
 7. Connect the hose to the hydrant, using any adapters that may be necessary
 8. Fully open the hydrant
- C. Hard suction hydrant connection
- Caution: Some light weight hard suction are designed for drafting only and should NOT be connected to a hydrant.*
1. Firefighter #1
 - a. Check to see booster tank valve is closed
 - b. Remove the pump intake cap
 - c. Assist with the removal of the hard suction from the pumper
 - d. Assist with the connection of the hard suction to the

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- e. pumper.
Assist with the connection of the hard suction to the hydrant
 - f. Fully open the hydrant
2. Firefighter #2
- a. Remove the hydrant wrench and adapter (if necessary) from the pumper
 - b. Remove the hydrant outlet cap
 - c. Place the hydrant wrench on the hydrant valve stem operating nut with the handle pointing away from the outlet
 - d. Open and then close the hydrant to make sure there is water and nothing is blocking the discharge
 - e. Place the adapter on the 4½ inch outlet, if necessary
 - f. Assist with the removal of the hard suction from the pumper
 - g. Assist with the connection of the hard suction to the pumper
 - h. Assist with the connection of the hard suction to the hydrant
- XI. Identify the procedure for hydrant to pumper hose connections for forward and reverse hose lays. **2-12.11 (3-3.14)**
- A. Reverse Lay
- 1. Firefighter at the scene
 - a. Pull off sufficient hose to reach the intake of the pumper
 - b. Anchor the hose
 - c. Signal pumper operator to proceed to the water source
 - d. Apply a hose clamp when safe to do so
 - 2. Firefighter at the water source
 - a. Pull the remaining length of the last section of hose from the hose bed
 - b. Disconnect the coupling and return the male coupling to the hose bed
 - c. Connect the supply hose to a discharge valve

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- B. Forward Lay
1. Firefighter at the hydrant
 - a. Pull sufficient hose to reach the hydrant
 - b. Approach the hydrant and loop the hose around it.
 - c. Place your foot on the hose
 - d. Signal the operator to proceed
 - e. Place the hydrant wrench on the valve stem operating nut
 - f. Remove the appropriate cap(s) from the hydrant
 - g. Open and then close the hydrant to make sure there is water and nothing is blocking the discharge.
 - h. Connect the supply hose to the outlet closest to the fire
 - i. Charge the hoseline, by fully opening the hydrant, when instructed to do so
 2. Firefighter at the scene
 - a. Apply a hose clamp
 - b. Pull the remaining length of the last section of hose from the hose bed
 - c. Disconnect the coupling and return the female coupling to the hose bed
 - d. Connect the supply hose to an intake
 - e. Signal for the hoseline to be charged
 - f. Remove the hose clamp
- XII. Identify the procedure assembling and connecting the equipment necessary for drafting from a static water supply source. **2-12.12 (3-3.14)**
- A. Firefighter #1
1. Check to see booster tank valve is closed
 2. Remove the pump intake cap
 3. Assist with the removal of the hard suction from the pumper
 4. Assist with connection of the strainer to the hard suction
 5. Assist with the connection of the hard suction to the pumper
 6. Assist with placing hard suction in water source
 7. Tighten all connections prior to drafting
- B. Firefighter #2
1. Remove strainer and an adapter (if necessary) from the pumper
 2. Place the adapter on the 4½ inch outlet if necessary
 3. Assist with the removal of the hard suction from the pumper

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4. Assist with connection of the strainer to the hard suction
 5. Assist with the connection of the hard suction to the pumper
 6. Assist with placing hard suction in water source
- XIII. Identify the procedure for the deployment of a portable water tank. **2-12.13 (3-3.14)**
- A. Place heavy tarp on ground to protect liner
 - B. Position tanks to permit access from multiple directions
 - C. Position tank to drain downhill, if possible
 - D. Guidelines for loading and unloading:
 1. Loading
 - a) Use best hydrant or fill site
 - b) Use large or multiple hoseline(s)
 - c) Use pumper, if needed, for adequate flow
 2. Unloading
 - a) Position portable tanks to permit more than one tanker to dump
 - b) Provide adequate personnel so tanker driver does not have to exit the cab
 - c) Select site so vehicles do a minimum of backing
- XIV. Identify the procedure for assembling the equipment necessary for the transfer of water between portable tanks. **2-12.14 (3-3.14)**
- A. Jet siphons
 - B. Tank connecting devices
- XV. **Demonstrate connecting a supply hose to a hydrant and fully open and close the hydrant. 2-12.15 (3-3.14(b))**
- A. Small intake hose-hydrant connection
 3. Removes intake hose(s), hydrant wrench and other required tools from pumper.
 4. Unrolls the hose(s)
 3. Connects the hose(s) to the pumper
 4. Places the hydrant wrench on the hydrant valve stem operating nut with the handle pointing away from the outlet(s)
 5. Removes the appropriate cap(s)

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6. Opens and then closes the hydrant to make sure there is water and nothing is blocking the discharge(s)
7. Connects the hose(s) to the hydrant, using any adapters that may be necessary
8. Fully opens the hydrant

B. Soft sleeve hydrant connection

1. Removes intake hose, hydrant wrench and other required tools from the pumper
2. Unrolls the hose
3. Connects the hose to the pumper
4. Places the hydrant wrench on the hydrant valve stem operating nut with the handle pointing away from the outlet
5. Removes the appropriate cap
6. Opens and then closes the hydrant to make sure there is water and nothing is blocking the discharge
7. Connects the hose to the hydrant, using any adapters that may be necessary
8. Fully opens the hydrant

C. Hard suction hydrant connection

Caution: Some light weight hard suction are designed for drafting only and should NOT be connected to a hydrant.

1. Firefighter #1
 - a. Checks to see booster tank valve is closed
 - b. Removes the pump intake cap
 - c. Assists with the removal of the hard suction from the pumper
 - d. Assists with the connection of the hard suction to the pumper.
 - e. Assists with the connection of the hard suction to the hydrant
 - f. Fully opens the hydrant

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2. Firefighter #2
 - a. Removes the hydrant wrench and adapter (if necessary) from the pumper
 - b. Removes the hydrant outlet cap
 - c. Places the hydrant wrench on the hydrant valve stem operating nut with the handle pointing away from the outlet
 - d. Opens and then closes the hydrant to make sure there is water and nothing is blocking the discharge
 - e. Places the adapter on the 4½ inch outlet, if necessary
 - f. Assists with the removal of the hard suction from the pumper
 - g. Assists with the connection of the hard suction to the pumper
 - h. Assists with the connection of the hard suction to the hydrant

XVI: Demonstrate hydrant to pumper hose connections for forward and reverse hose lays. 2-12.16 (3-3.14(b))

- A. Reverse Lay
 1. Firefighter at the scene
 - a. Pulls off sufficient hose to reach the intake of the pumper
 - b. Anchors the hose
 - c. Signals pumper operator to proceed to the water source
 - d. Applies a hose clamp when safe to do so
 2. Firefighter at the water source
 - a. Pulls the remaining length of the last section of hose from the hose bed
 - b. Disconnects the coupling and returns the male coupling to the hose bed
 - c. Connects the supply hose to a discharge valve

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- B. Forward Lay
 - 1. Firefighter at the hydrant
 - a. Pulls sufficient hose to reach the hydrant
 - b. Approaches the hydrant and loops the hose around it.
 - c. Places his/her foot on the hose
 - d. Signals the operator to proceed
 - e. Places the hydrant wrench on the valve stem operating nut
 - f. Removes the appropriate cap(s) from the hydrant
 - g. Opens and then closes the hydrant to make sure there is water and nothing is blocking the discharge.
 - h. Connects the supply hose to the outlet closest to the fire
 - i. Charges the hoseline, by fully opening the hydrant, when instructed to do so
 - 2. Firefighter at the scene
 - a. Applies a hose clamp
 - b. Pulls the remaining length of the last section of hose from the hose bed
 - c. Disconnects the coupling and returns the female coupling to the hose bed
 - d. Connects the supply hose to an intake
 - e. Signals for the hoseline to be charged
 - f. Removes the hose clamp

XVII. Demonstrate assembling and connecting the equipment necessary for drafting from a static water supply source. 2-12.17 (3-3.14(b))

- A. Firefighter #1
 - 1. Checks to see booster tank valve is closed
 - 2. Removes the pump intake cap
 - 3. Assists with the removal of the hard suction from the pumper
 - 4. Assists with connection of the strainer to the hard suction
 - 5. Assists with the connection of the hard suction to the pumper
 - 6. Assists with placing hard suction in water source
 - 7. Tightens all connections prior to drafting

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- B. Firefighter #2
 - 1. Removes strainer and an adapter (if necessary) from the pumper
 - 2. Places the adapter on the 4½ inch outlet if necessary
 - 3. Assists with the removal of the hard suction from the pumper
 - 4. Assists with connection of the strainer to the hard suction
 - 5. Assists with the connection of the hard suction to the pumper
 - 6. Assists with placing hard suction in water source

XVIII. Demonstrate the deployment of a portable water tank 2-12.18 (3-3.14(b))

- A. Places heavy tarp on ground to protect liner
- B. Positions tanks to permit access from multiple directions
- C. Positions tank to drain downhill, if possible
- D. Guidelines for loading and unloading:
 - 1. Loading
 - a) Uses best hydrant or fill site
 - b) Uses large or multiple hoseline(s)
 - c) Uses pumper, if needed, for adequate flow
 - 2. Unloading
 - a) Positions portable tanks to permit more than one tanker to dump
 - b) Provides adequate personnel so tanker driver does not have to exit the cab
 - c) Selects site so vehicles do a minimum of backing

XIX. Demonstrate assembling the equipment necessary for the transfer of water between portable tanks. 2-12.19 (3-3.14(b))

- A. Jet siphons
- B. Tank connecting devices