

INSTRUCTOR GUIDE

TOPIC: BACK TO BASICS: ADVANCING ATTACK LINES

TIME REQUIRED: THREE HOURS

MATERIALS: TWO FULLY EQUIPPED PUMPER
STRUCTURE FOR USE IN ADVANCING HOSE

REFERENCES: ESSENTIALS OF FIRE FIGHTING, FOURTH EDITION, IFSTA,
CHAPTERS 12 AND 13 AND PAGES 521-529

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PREPARATION:

MOTIVATION: Basic skills should be second-nature to each and every firefighter; however, the little things that go along with performing those skills can result in firefighters getting injured or killed. Performing those skills as a team will result in a more efficient operation and better service being provided.

OBJECTIVE (SPO): The firefighter will demonstrate a general understanding of the various methods of advancing an attack line into a structure and the basic principles of fire attack.

OVERVIEW:

ADVANCING ATTACK LINES

- * Introduction to Attack Lines
- * Advancing Attack Lines
- * Fire Attack

ADVANCING ATTACK LINES

SPO: The firefighter will demonstrate a general understanding of the various methods of advancing an attack line into a structure and the basic principles of fire attack.

EO 1-1 Explain the application and use of attack lines.

EO 1-2 Demonstrate advancing attack lines into a structure.

EO 1-3 Demonstrate a basic knowledge related to the placement of fire streams at structural fires.

The purpose of this drill is to review and build on basic skills with the emphasis on improving efficiency and teamwork. It is assumed that the participants have some basic knowledge of the subject matter. The focus of the drill should include personal and team safety. The drill should include minimal instruction and maximum skills practice. The drill should also be conducted with the normal staffing that would respond on an engine on a structure assignment.

I. INTRODUCTION TO ATTACK LINES (1-1)

A. Use and Application of Attack Lines

1. Consist of hoselines of 1-1/2-inch, 1-3/4-inch, 2-inch, and 2-1/2-inch
2. Generally pre-connected to the apparatus and equipped with a nozzle
3. In lengths of at least 150 feet

B. Nozzles

1. Combination nozzle - adjustable patterns from straight stream to wide angle fog; may have adjustable flow by adjustment ring or automatic flow with variable flow based on nozzle pressure - flow from 65 to 350 GPM
2. Solid stream nozzle - smooth bore tip for straight stream; may have multiple tips for different flows - flow from 150 to 350 GPM

C. Hose Line Selection

1. Engine company must be considerate of limitations of various sizes of hose
2. In addition to flow limitation, there is factor known as friction loss which affects fire flows
 - a. Loss of pressure within hose line due to internal resistance of water against hose lining
 - b. Friction loss affected by three factors
 - 1) Flow
 - 2) Hose length
 - 3) Size of hose
 - c. Should be consideration to engine company crew when selecting attack lines which must be stretched over long distances
 - d. 1-1/2-inch, 1-3/4-inch, and 2-inch attack lines should not exceed 300 feet in length
 - e. 2-1/2-inch attack lines should not exceed 500 feet
 - f. When lengths of attack line beyond those recommended are required, consideration should be given to using 3-inch, 4-inch, or 5-inch hose to

get water closer to the fire scene and dividing the flow into more manageable size attack lines using wyes or manifolds (leader line)

3. Range of nozzle flows for combination nozzles with recommended nozzle pressure of 100 psi
 - a. 1-1/2-inch 30 gpm to 125 gpm
 - b. 1-3/4-inch/2-inch 95 gpm to 200 gpm
 - c. 2-1/2-inch 125 gpm to 250 gpm
4. Other considerations
 - a. Staffing to advance and operate the attack line
 - b. Water flow requirements
 - c. Location of and access to the fire
 - d. Ability to deploy the attack line quickly and efficiently
 - e. Attack line length choices

D. Attack Line Hose Loads

1. Minuteman load - hose load includes a certain amount, generally 100 feet, of shoulder load as part of the overall load; nozzle is positioned in middle of load
 - a. Divide the amount of hose to be loaded equally so that half of it is on the bottom of the stack (or beside it) and the other half is loaded to form a shoulder load, e.g., 100 feet on the bottom and 100 feet on the top (or side by side)
 - b. Connect a female coupling to the discharge
 - c. Begin the pack the first half of the load leaving an ear after the first full fold
 - d. Continue packing the hose until the mid-point is reached (remember to stagger every other fold to reduce damage to the hose)
 - e. Place the male coupling at the front of the hose bed
 - f. Connect a nozzle to a male coupling on the remaining hose to be loaded
 - g. Place the nozzle on top of the length of hose attached to it
 - h. Pull the hose toward the front of the hose bed so that the hose can fold back over the nozzle at the rear of the hose bed to protect the nozzle
 - i. Once the first full fold of hose is loaded, fold the hose back over the nozzle (the nozzle may extend beyond the end of the hose bed)
 - j. Continue packing the hose until the remaining hose is loaded
 - k. Connect the female coupling on the top half to the male coupling on the bottom half

2. Stack load - hose stacked with ears protruding for ease in pulling; nozzle is on top of load
 - a. Connect a female coupling to the discharge
 - b. Place an ear in the first full fold
 - c. Continue to load the hose until it has all been placed in the hose bed (remember to stagger every other fold to reduce damage to the hose)
 - d. Place the nozzle on top of the stack

II. ADVANCING ATTACK LINES (1-2)

NOTE: This should be reviewed and then practiced so that each group of two or three has a chance to do it.

NOTE: It should be clearly understood by all of when according to department SOP's the pump operator charged the attack line so that no one is injured by a line being charged while it is still on a person's shoulders or they are advancing it up or down a stairs or on a ladder.

A. Pulling Attack Lines

1. Minuteman load

- a. Pull shoulder load beginning at nozzle and all hose above it by grabbing nozzle and hose above it and placing it on the shoulder
- b. Pull hose out of the hosebed so that about four feet is on your shoulder
- c. Continue moving forward until all the shoulder load has cleared the hosebed
- d. Turn around and pull the exposed ear so that the remaining hose is removed from the hosebed
- e. Walk toward the structure while allowing the hose on the ground to stretch out
- f. Once the hose on the ground has been stretched out, the hose on the shoulder will start stretching out
- g. Hose remaining on the shoulder should be placed near the entrance to the structure and stretched out to avoid any kinking in the hose

2. Stack load

- a. Pull several folds of hose and the nozzle out of the hosebed so that about four feet is on the shoulder
- b. Attempt to turn the hose on the shoulder over so that the nozzle is on the

bottom of the stack

- c. Continue moving forward until all the hose has cleared the hosebed
- d. Turn around and pull the exposed end so that the remaining hose is removed from the hosebed
- e. Walk toward the structure while allowing the hose on the ground to stretch out
- f. Once the hose on the ground has been stretched out, the hose on the shoulder will start to stretch out
- g. Hose remaining on the shoulder should be placed near the entrance to the structure and flaked out to avoid any kinking in the hose

B. Advancing Attack Lines into a Structure

1. After line has been charged, open nozzle to bleed air and check nozzle pattern
2. All personnel on the hoseline should be on the same side of the hose
3. Check door to see if it is hot before opening
4. For doors that open in, stay to the side of the door to prevent fire blowing out the door and exposing the firefighters (may want to consider putting a short piece of rope on the doorknob in case there is a need to pull the door closed)
5. For doors that open out, stay behind the door
6. Once the door is open, move in slowly making sure that the floor is strong enough to support the firefighters
7. Stay low to improve visibility and reduce exposure to heat and gases
8. Feel the walls and floor and check the ceiling periodically to make sure there is no fire above, below, or beside the firefighters as they move into the structure
9. Personnel should monitor the attack crew to make sure that they have enough hose to reach the fire; this may require some personnel to drop back to assist in moving hose through doors and around corners
10. Practical
 - a. Advance a charged 1-1/2-inch, 1-3/4-inch, or 2-inch line to the fire floor and a second charged line of the same size to the floor above the fire floor
 - b. Advance an uncharged 3-inch, 4-inch, or 5-inch line to the base of a structure, attach a wye, connect two 1-1/2-inch, 1-3/4-inch, or 2-inch lines, charge the system, and advance the attack lines into the structure

C. Advancing an Attack Line Up a Stairway

1. Once inside the structure and locating an up stairway, move slowly up the stairway taking care to monitor any fire that may be under the stairway
2. Feel the stairs while proceeding to make sure that they will support the weight of the firefighters
3. Once at the top of the stairs proceed with advancing the hoseline

4. Practical

- a. Advance an uncharged 1-1/2-inch, 1-3/4-inch, or 2-inch line up an interior stairs to a location above the ground floor
- b. Advance a charged 1-1/2-inch, 1-3/4-inch, or 2-inch line up an interior stairs to a location above the ground floor
- c. Advance a charged 1-1/2-inch, 1-3/4-inch, or 2-inch line to the fire floor and a second charged line of the same size to the floor above the fire floor
- d. Advance a charged 2-1/2-inch line up an interior stairs to a location above the ground floor
- e. Advance a charged 1-1/2-inch, 1-3/4-inch, or 2-inch line to the fire floor and a 2-1/2-inch charged line to the floor above the fire floor.

D. Advancing an Attack Line Down a Stairway

1. Once inside the structure and locating a down stairway, move slowly down the stairway taking care to monitor any fire that may be under the stairway
2. Feel the stairs while proceeding to make sure that they will support the weight of the firefighters
3. Monitor the heat level while proceeding down the stairs in the event that the heat level is reaching the point of flashing in the lower level and sending that heat up the stairs
4. Once at the bottom of the stairs proceed with advancing the hoseline
5. Practical
 - a. Advance a charged 1-1/2-inch, 1-3/4-inch, or 2-inch line down an interior stairs to a location below the entry floor.

E. Advancing an Uncharged Line up a Ladder

1. Place the needed hose at the base of the ladder
2. The first firefighter ascending the ladder will take the nozzle
3. The hoseline is placed under the left or right arm, depending on the side of the ladder being exited (hose should be on the same side)
4. The hoseline crosses the chest with the nozzle draped over the opposite shoulder
5. The next firefighter will be approximately 15 feet behind the first firefighter with approximately 25 feet of hose between the two firefighters
6. The excess hose will be draped over the side of the ladder on which the firefighters will exit
7. Additional firefighters will be positioned on the ladder as needed every 15 feet with 25 feet of hose between them
8. Once the first firefighter reaches the top of the ladder, they will enter the opening or roof with the hoseline

9. The second firefighter will proceed to the top of the ladder, take a leg lock, advance any additional hose that is needed, and then proceed to assist the first firefighter
10. Other firefighters will take leg locks on the ladder and hand advance hose
11. Once adequate hose has been advanced, the other firefighters on the ladder will exit and the line will be charged
12. A firefighter will go up the ladder and, using a rope hose tool, secure the hose the center of the ladder at each ladder section
13. Practical
 - a. Advance an uncharged 1-1/2-inch, 1-3/4-inch, or 2-inch line up a ladder to a floor above the ground floor.

F. Advancing a Charged Line up a Ladder

1. Place the needed hose at the base of the ladder
2. The first firefighter ascending the ladder will take the nozzle in one hand while holding onto the ladder beam with the other hand
3. The firefighter will proceed up the ladder
4. The next firefighter will be approximately 15 feet behind the first firefighter holding onto the hose with one hand and the ladder beam with the other hand
5. Additional firefighters will be positioned on the ladder as needed every 15 feet
6. Once the first firefighter reaches the top of the ladder, they will enter the opening or roof with the hoseline
7. The second firefighter will proceed to the top of the ladder, take a leg lock, advance any additional hose that is needed, and then proceed to assist the first firefighter
8. Other firefighters will take leg locks on the ladder and hand advance hose
9. Once adequate hose has been advanced, the other firefighters on the ladder will exit and the line will be charged
10. A firefighter will go up the ladder and, using a rope hose tool, secure the hose the center of the ladder at each ladder section
11. Practical
 - a. Advance a charged 1-1/2-inch, 1-3/4-inch, or 2-inch line up a ladder to a floor above the ground floor
 - b. Advance a charged 2-1/2-inch line up a ladder to a floor above the ground floor

G. Standpipe Operations

1. Beginning attack operations

- a. Connect to outlet in stairwell on floor below the fire floor
- b. Pull excess hose up stairway toward next floor before charging
- c. Be careful not to impede evacuation or allow great volumes of smoke in stairway

2. Fire department siamese

- a. Water should be pumped into any standpipe system being used for firefighting
- b. At least two lines should be connected
 - 1) First line to left intake and charged
 - 2) Second line to right intake
- c. If supply line cannot be connected to siamese, water can be supplied to system through outlet on first floor
- d. Pumper should be positioned within 50 feet

3. Practical

- a. Set up and establish a water supply from the attack pumper to a fire protective system using multiple lines of 2-1/2-inch or 3-inch hose
- b. Advance an uncharged 1-1/2-inch, 1-3/4-inch, or 2-inch line to the floor below the fire floor, connect it to the standpipe connection, charge it, and advance it to the fire floor
- c. After the line is charged, extend the line to a higher floor using an extra section of hose (may require the use of a breakaway nozzle)

III. FIRE ATTACK (1-3)

A. Initial Attack

1. Direct attack

- a. Used for smaller fires or lower heat levels in the room
- b. Water is applied directly to fire rather than area above fire
- c. Narrow fog or straight stream used
- d. Produces less steam which is beneficial where a victim may be involved

2. Indirect attack - fog stream used to attack fire from outside building

- a. Should not be used to fight fire in occupied building
- b. Quick interior attack should not be made in building undergoing

- demolition, abandoned, had previous fires or under construction
- c. If large intense fire encountered, may be necessary to knock down or control fire from outside using solid stream before making interior attack

3. Combination attack

- a. Used when entire area has high heat level
- b. Consists of applying water to fire and area above fire
- c. Pattern includes the T, Z, and O

4. Number of lines

- a. Attack main body of fire
- b. Get over fire
- c. On each side of fire
- d. Consideration must be given to mobility of hose and flow requirements

B. Solid Stream Versus Fog Stream

1. For safest and most effective operation where people in area, solid stream or fog nozzle on straight stream position should be used
 - a. Aid rescue
 - b. Reduce steam production
2. Use of fog should be restricted to unoccupied confined spaces
3. When building adequately ventilated opposite direction from fog nozzle, fog stream can be used
 - a. No more than 30-degree angle
 - b. Produces reach and fog pattern

C. Effective Stream Operation

1. Use solid stream nozzles or set fog nozzles on straight stream setting
2. Stay low upon entering fire area to let heat and gases vent before moving in
3. Before door to fire area opened, all firefighters should be positioned on same side of entrance and remain low
4. Crack nozzle and bleed air out of line ahead of water
5. If fire shows at top of door as opened, ceiling should be hit with solid or straight stream to cool and control fire gases
6. Sweep floor with stream to cool burning debris and hot surfaces
7. Do not open stream until fire can be hit unless firefighter safety involved

8. Direct the stream at the base of fire if localized
9. As the advance is made, the angle of stream should be lowered and an attempt made to hit the main body of fire
10. When the main body of fire knocked down, shut down the stream and let the area vent
11. When the fire is knocked down, shut down the nozzle
12. Upon entering an area which is very hot and finding no fire, withdraw immediately and check the area below
13. When attacking basement fire down interior stairs, straight stream should be used because fog will generate steam

D. Other Considerations

1. Do not attack the fire from more than one direction to avoid driving heat and fire at the opposing crew
2. Coordinate ventilation with fire attack to reduce fire spread
3. Ventilate just prior to initiating fire attack to reduce the heat level and provide an avenue for steam escape
4. Do not open the nozzle until you are sure of the location of all crew members and other working in the area and that no one is in the doorway
5. Knock down the fire and then move in to extinguish hot spots
6. If you cannot see your feet in the smoke, you should be crawling and not standing up
7. Always have an escape plan
8. Try to avoid letting fire cut off your escape route
9. Stay with your crew and officer and watch out for each other

REVIEW:

ADVANCING ATTACK LINES

- * Introduction to Attack Lines
- * Advancing Attack Lines
- * Fire Attack

REMOTIVATION: While skills such as advancing attack lines may appear to be something very basic, there is no harm by working to maintain or improve proficiency.

ASSIGNMENT:

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EVALUATION: