	<b>Cincinnati Fire Department Fire Training Supplement DRILL BOOK</b>	<b>SECTION #4 Ladder Company Operations</b>
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## **TOPIC #14                      MANUAL LADDER PIPE OPERATIONS**


Ladder pipe streams can deliver water on the upper floors of a building that may be inaccessible to fire fighters by conventional means.

- Ladder Pipe equipment is carried on all Ladder trucks.
- Ladder pipes are placed in service on various ladder trucks by different methods. Straight trucks can have the ladder pipe mounted in the bed, but it may be easier if the ladder is slightly extended or turned to one side or the other.

### **LADDER PIPE EQUIPMENT**

The following is a list of possible ladder pipe equipment. Each Ladder Company will carry all of the necessary components in order to effectively operate a ladder pipe.

- One (1) Ladder Pipe with tips (1-1/4", 1-1/2" and 1-3/4")
- Three (3) sections of 3" hose (50 foot each with national standard threads) (yellow rubber jacket) OR one (1) section of 100 feet 3" hose and one (1) 50 foot section of 3" hose.  
(Some E-One aerials need to have more than 100 feet on the apparatus as their aerial is 110' in length.)
- One (1) Stortz 3-way wye (*carried by Engine companies*)
- One (1) Ladder Pipe wye (3-way siamese, (1) - 3" male[cst] to (3) – 2-1/2" female[cst], with adapter)
- One (1) 2-1/2" gate valve wye [(1) 3" male[cst], (2) 2-1/2" female [cst]]
- One (1) adapter (3" male[nst] to 2-1/2" female[cst], attached to the gate valve wye)
- One (1) adapter (3 "female[cst] to 3 "male[nst], usually painted green and attached to the ladder pipe wye)
- Two (2) control rope, 250' long (white nylon ropes) – Ladder Pipe Control Ropes
- One (1) Ladder Pipe hose strap

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### **LADDER PIPE NOZZLES:**


There are different nozzles that will fit on the ladder pipes themselves.

1. The Task Force Tip Master Stream nozzle
2. The Ladder Pipe solid stream tips on a 2-1/2" splitter pipe (1-1/4", 1-1/2" and 1-3/4") – **CARRY LARGEST SMOOTH BORE TIP ON LADDER PIPE FOR MAXIMUM GPM FLOW.**
3. The Imperial "1000" nozzle

***SEE NOZZLE TOPICE IN SECTION #3 FOR MORE INFO***


### **LADDER PIPE NOTES:**

1. On E-Ones, maximum extension for all aerials when using a ladder pipe is 110 feet and the maximum angle is **82deg.**
  - **All other aerials – follow guidelines in Drivers Manual or on Turntable.**
2. If the 2-1/2" gate valve wye is used in ladder pipe operations and three lines are ordered to supply the ladder pipe, attach a second 2-1/2" gated wye to the first one. Attach the (F) end of the wye to one of the (M) discharges, thus giving you (3) discharges.
3. When taking lines from any ladder pipe on upper floors, the ladder must be  tied in  and the aerial remain in position until the lines are disconnected. To tie in the ladder, pass the hose through the rungs into the building or onto the roof.
4. Whenever possible, 5 inch hose and the 3-way stortz wye should be used to supply ladder pipe operations.


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## SETTING UP

1. During emergency operations, the aerial apparatus can be positioned in accordance to demands created by each individual emergency. The distance from the building, as well as the angle and extension, will be different for each event. Always consider the collapse zones. The corners of the building are the safest location for placement. When placing aerial ladders, the FAO must set-up in a manner that allows for re-placement if the strategic mode changes from offensive to defensive.
2. After the apparatus is positioned, the aerial ladder is placed in the necessary position to attach the ladder pipe.
3. The ladder pipe is attached and the 3" hose is laid in the center of the ladder and connected to the ladder pipe, **spanner tight**.
4. The remainder of the 3" hose is flaked on the ground on the side of the apparatus that is away from the fire.
5. The "LP" hose is connected, preferably to a Stortz 3-way wye, with the use of a 2-1/2" female to 3" male adapter. If a Stortz is not available, one of the other wyes carried by the Ladder company may be substituted. If the Stortz wye is used, a 5" supply line must be secured from an on-scene engine company, or in the case of the gated wye or the ladder pipe wye, two or three 2-1/2" lines are necessary to supply the ladder pipe.
6. The ladder pipe control rope should now be attached. One clip of the rope is attached to the control rod, on the top side of the "fly" ladder. The other clip for the control rope is attached to the connector on the control rod or the splitter pipe on the bottom side of the "fly" ladder (which ever is applicable). This controls the up and down movement of the stream.
7. If a variable stream nozzle, that can be adjusted by the use of a ladder pipe control rope is being used, a second control rope should be employed. After all necessary ropes have been connected, the fire fighters responsible for their operation should position themselves near the turntable, opposite the fire, in the most advantageous spot.

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8. When sufficient connections have been made, the ladder can be raised. After the ladder has been raised to the desired level, the ladder pipe hose should be strapped. This should be done after the ladder is raised, before it is extended and with the ladder pipe tip in the down position, so that elongation in the hose will be accounted for and the ladder may be extended or retracted with the ladder pipe in service. The LP hose strap should be placed around the hose and the hook should be inserted through the ring on the strap. The hook should then be attached to the second rung of the fly ladder, taking care not to hook the aerial cables. If the ladder pipe hose strap is unavailable, use two regular hose straps.
9. The water may be started after the ladder has been raised to the desired angle, all connections are made and the hose has been strapped.
  - a. If the angle must be changed during straight stream operations, the line should be shut down or the pressure greatly reduced while the change is initiated.
  - b. The Stortz wye and the 2-1/2" gated wye have valves that can be used to start and stop the flow of water to the ladder pipe. If the ladder pipe wye is used, the water can be controlled by the Engine FAO or by the use of the hose clamp (use in #3 position if so equipped).
10. The ladder can now be extended to the desired level.
11. Vertical streams from story to story are controlled by extending and retracting the ladder, while the control ropes are used to control vertical movement from floor to ceiling.
12. Horizontal control of the ladder while water is being discharged is accomplished by the FAO.
13. If a fire fighter must be sent up the aerial to control the vertical movement, or to change the nozzle, pattern he must wear appropriate personal protective equipment (PPE) and must utilize a safety belt while making adjustments.
  - a. E-ONE ladders are equipped with an inclinometer that shows the number of fire fighters allowed on the ladder and at what angles, as the stream is being operated.


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**LADDER PIPE HOSE  
STORED ON TOP OF APPARATUS  
HOSE STRAPS AND SPANNERS**



**LADDER PIPE AND TIPS**



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## LADDER PIPE SET UP

