

Nozzle Unit 4-1

PyroLance Piercing Nozzle Operations (No Fire)

Lesson Goal

After completing this lesson, the student shall be able to summarize procedures and guidelines for PyroLance Nozzle operations and perform basic piercing operations following the policies and procedures set forth by PyroLance North America LLC.

Objectives

Upon successful completion of this lesson, the student shall be able to:

1. Conduct a Pre Use inspection of the nozzle.
2. Connect the nozzle to the hose and lock connector
3. Spray water and correct placement of nozzle for extinguishment.
4. Pierce an object while running PyroShot through the nozzle.
5. Conduct basic Nozzle Trouble Shooting.
6. Change the battery in the nozzle transmission module.

Instructor Information

This lesson covering the PyroLance Piercing nozzle operations for both water and Pyro shot will demonstrate the UHP fog stream and the piercing capabilities of the PyroLance Piercing nozzle. The purpose of this lesson is to provide the student with an understanding of what UHP with Piercing capabilities consist of and guidelines for using UHP/Piercing nozzles. While this lesson specifically covers PyroLance Piercing nozzle operations, the instructor should always stress firefighter safety throughout the course.

You should emphasize that safety must be a priority for all firefighters in every situation they may encounter.

Important instructor information is provided in shaded boxes throughout the lesson plan. Carefully review the instructor information before presenting the lesson. Use this lesson to initiate discussion on safety issues in the fire service. Supplement this lesson with current case studies involving safety issues in the fire service.

Methodology

This lesson uses demonstration in the field, discussion, and skills practice. The level of learning is application.

Estimated Total Time: 2 hours

Field teaching/demonstration:	20 minutes
Skills Practice:	20 minutes/student

Time	Section/Activity	
10 min.	Walk through the entire PyroLance Piercing Unit	

10 min.	<p>Demonstrate the use of the PyroLance Piercing Nozzle:</p> <ul style="list-style-type: none"> • Inspection <ul style="list-style-type: none"> ○ Check Hoses ○ Check Battery ○ Confirm Signal between Transmitter/Receiver Unit ○ Show use of Emergency Override ○ Show Emergency Stop • Flow Water <ul style="list-style-type: none"> ○ Show misting ○ Show distance • Flow Pyro Shot <ul style="list-style-type: none"> ○ Select object to pierce ○ Pierce object • Explain First Aid Procedures involving injuries sustained by UHP equipment 	
20 min.	<p>Choose one student to preform correct operations of PyroLance Piercing Nozzle:</p> <ul style="list-style-type: none"> • Walk thru PPE Requirements • Demonstrate correct stance • Demonstrate Emergency Stop Procedures 	
20 min/	Skills Practice	
10 min	Summary and Review	

Audiovisuals/Handouts

- PyroLance Piercing Nozzle video

Evaluation

- Skill Sheets 4-1

Section I: Introduction to Unit 1*10 min.***I. INTRODUCTION TO UNIT 1****A. Lesson Goal**

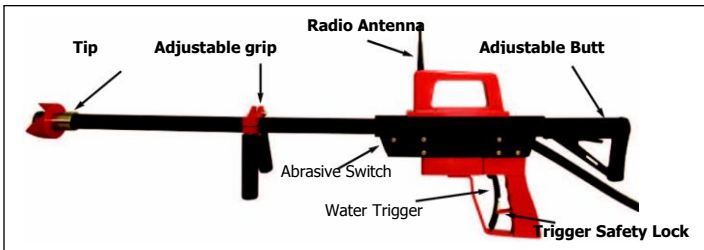
Instructor Note: Briefly review the lesson goal. Answer any questions about the goal. Emphasize that the purpose of the lesson is to familiarize the students with the correct techniques when using the PyroLance Piercing Nozzle.

Unit 1 lesson goal — after completing this lesson, the student shall be able to correctly use the PyroLance Piercing Nozzle with both water and Pyro Shot for piercing, following the policies and procedures set forth by the authority having jurisdiction (AHJ).

Section II: Demonstrate the use of the PyroLance Piercing Nozzle *20 min.*

II. DEMONSTRATE THE USE OF THE PYROLANCE PIERCING NOZZLE

Instructor Note: The purpose of this section is to walk through each step of the operations of the PyroLance Piercing nozzle using both water and Pyro Shot for piercing of objects.



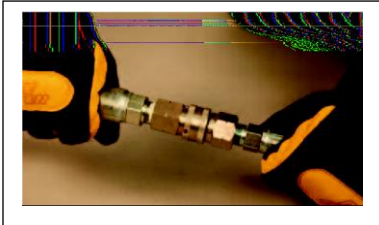
1. Correct Pre-use inspection of Nozzle.

Make sure that all components of the PyroLance Piercing nozzle are gone over and that the students can identify each component.



2. Engage the trigger safety lock prior to use.
3. Explain muzzle discipline as they would use a hunting rifle.

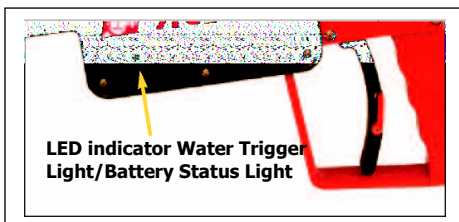
Safety Note: Explain the muzzle discipline concept when one is hunting to equate the safety issues with the nozzle tip and where it is pointed.



4. Connect PyroLance Piercing nozzle to hose and engage safety lock.

5. Adjust Tripod stand grip to fit.

6. Test trigger switch with pump unit...



Instructor Note: The LED light will flash 5 times when battery is low.

- Show signal between Transmitter/Receiver unit
- Demonstrate Emergency Override Procedure.
- Demonstrate Re-Programming of receiver/Transmitter unit
- Demonstrate Battery replacement.
- See Operations Manual for details.

7. Pull trigger and spray water into the air, spray then release trigger.

Instructor Note: This is a great opportunity to demonstrate the UHP water stream and discuss the droplet size. Explain the significance of "Hang time" in terms of increasing the humidity to 30%.



8. Place nozzle against object to be pierced and demonstrate correct Nozzle placement.

Instructor Note:

- External spray is visible during penetration (cutting) of the target.
- Little or no external spray is visible after penetration is completed

Trouble Shooting: If the Lance is not piercing, check the following in this order:

1. Is the Abrasive switch on
 - a. If not, turn switch on
 - b. If on, is there abrasive flowing
 - c. If no abrasive flowing, check operation manual for unit on replacing abrasive.



9. Nozzle man to engage abrasive switch and check that LED light is on which indicates abrasive flow.

Trouble Shooting: If the light does not go on:

- Check Antenna is up
- Demonstrate Battery Replacement
- Demonstrate Reprogramming Procedure

10. Turn off abrasive switch once piercing evolution is complete.
11. Release trigger when piercing is complete.
12. Shut down unit and disconnect PyroLance Piercing nozzle from hose.
13. Flush Unit.
14. Winterize Unit if Applicable.

Replacement of Remote Control Signal Transmitter Battery

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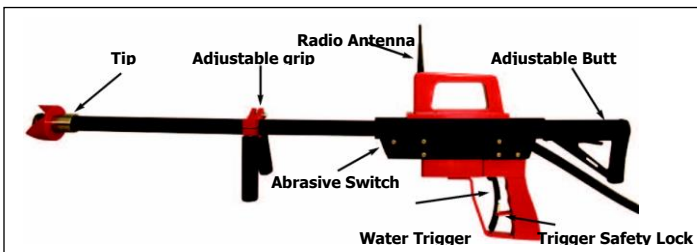
Instructor Note: Do not depress the trigger or cycle the abrasive switch while the batteries are removed. This will delete the memory and require reprogramming of the Transmitter/Receiver unit.

- a) Using a Phillips screwdriver, remove the 6 screws holding the cover. (See photo 1 below).
- b) Remove the cover. (See photo 2 below)
- c) Lift out the transmitter.
- d) Using Phillips screwdriver, remove the screw and transmitter cover.
- e) Replace 2 AAA batteries and repeat steps a-d in reverse.



Section III: Skills Practice*20 min. each student***III. SKILLS PRACTICE**

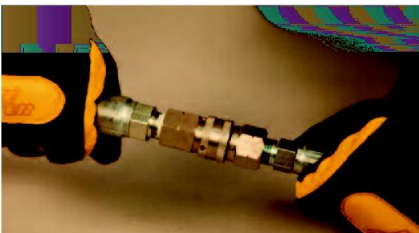
Instructor Note: The purpose of this section is to have each student demonstrate the correct use of the PyroLance Piercing nozzle with both water and Pyro Shot to pierce an object.



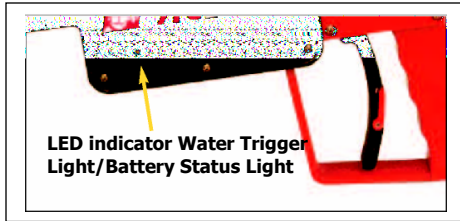
1. Correct Pre-use inspection of Nozzle.



2. Engage the trigger safety lever prior to use.



3. Connect PyroLance Piercing nozzle to hose and engage safety lock.



4. Adjust Tripod stand grip and shoulder stock to fit prior to use.
5. Test trigger switch with pump unit...

Instructor Note: The LED light will flash 5 times when low. Check Operations manual for battery replacement operations.

6. Pull trigger and spray water into the air, spray then release trigger.

Instructor Note: This is a great opportunity to demonstrate the UHP water stream and discuss the droplet size and how UHP works.



7. Place nozzle against object to be pierced and demonstrate correct nozzle placement.

Instructor Note:

- External spray is visible during penetration (cutting) of the target.
- Little or no external spray is visible after penetration (cutting) is completed



8. Nozzle man to engage abrasive switch and check that LED light is on which indicates abrasive flow.
9. Turn off abrasive switch once piercing evolution is complete.
10. Release trigger when piercing is complete.
11. Shut down unit and disconnect PyroLance Piercing nozzle from hose.

Replacement of Remote Control Signal Transmitter Battery

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Instructor Note: Do not depress the trigger or cycle the abrasive switch while the batteries are removed. This will delete the memory and require reprogramming of the Transmitter/Receiver unit.

- a) Using a Phillips screwdriver, remove the 6 screws holding the cover. (See photo 1 below).
- b) Remove the cover. (See photo 2 below)
- c) Lift out the transmitter.
- d) Using Phillips screwdriver, remove the screw and transmitter cover.
- e) Replace 2 AAA batteries and repeat steps a-d in reverse.



Ask Students: What are the benefits that they took out of the lesson?

Briefly discuss the answers with the students. Stress the safety to firefighters and the importance of using UHP and the limits (another tool in the tool box).

Discussion Point:

Discuss with the students how they see the use of UHP without and with piercing, can be used on the fire ground.

Ask what the students see where they can see this technology will assist in their operations.



NOTES