



**ADVANCED  
FIRE  
TRAINING  
PROPS**

*HOSE LINE  
TRAINING  
SYSTEM  
(HLTS)*

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**[ USER'S MANUAL**



 **WARNING**

Improper installation, connecting, adjustment, alteration, service, or maintenance could result in property damage, death, or serious injury.

Read the setup, operation and maintenance instructions thoroughly before installing or servicing this equipment.

Failure to follow these instructions could result in property damage, personal injury, or death.

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**SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE**

# 1. INTRODUCTION

## **Congratulations on purchasing your Advanced Fire Training Prop package.**

BulEx Advanced Fire Training Props provide safer, cleaner, and repeatable full scale fire fighter training scenarios. Different full scale props, including a car, pressure vessel, and helicopter can be paired with the BulEx **Hoseline Fire Training System** (HLTS) to provide a variety of training scenarios. There are dozens of additional props designed specifically for your system to create range of residential, industrial, and specialized fire training scenarios. Each prop utilizes up to four different burn zones that can be easily controlled with your wired or optional wireless remote.

BulEx Advanced Fire Training Props can also be outfitted with a Smoke Generator and Sound System to add to the realism of the scenario. The Sound System package comes with standard fire and rescue sounds but any MP3 audio file can be uploaded and played through the system. The Smoke Generator package includes a high output smoke generator, protective box, and ducting to direct the smoke within the prop.

## FOR YOUR SAFETY



## WARNING

1. This appliance is for outdoor use only. Do not use in a building, garage, container, or any other enclosed area.
2. Always use in accordance with all applicable local, state and national codes including standards and guidelines for fire training.
3. Only trained, professional users should operate this appliance.
4. Operators must wear proper PPE in accordance with NFPA and local fire training standards when setting up, operating and breaking down this appliance.
5. Trainees and any other observers within proximity of training must wear proper PPE in accordance with NFPA and local fire training standards when using this appliance.
6. When using this appliance, exercise the same precautions you would with any open fire.
7. The use of alcohol, prescription or non-prescription drugs may impair the consumer's ability to safely operate this appliance.
8. Do NOT use this appliance without reading the entire "User's Manual".
9. Do NOT alter this appliance in any manner. Do NOT place any objects on the appliance other than applicable BullEx HLTS props.
10. Do NOT store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.
11. Do NOT use this appliance within 30 feet of automobiles, trucks, vans or recreational vehicles.
12. Do NOT use in an explosive atmosphere. Keep the area surrounding the appliance free and clear from combustible materials, gasoline and other flammable liquids.
13. Do NOT use this appliance under any overhead or near any unprotected combustible constructions. Do not use this appliance near or under overhanging trees and shrubs.
14. Always use this appliance on a hard, level, non-combustible surface such as concrete, rock or stone.
15. Do NOT smoke while using unit.
16. Always fill this appliance with the proper amount of water specified in the "Setup Instructions" before each use.
17. Do NOT attempt to manually light the pilot.
18. All surfaces of this appliance are hot when in operation. Do NOT touch appliance while in operation. After use, wait until the appliance has cooled completely to avoid burns.
19. Do NOT attempt to move or store props until completely cooled.
20. Do NOT move this appliance when the "Burn Tray" contains water.
21. Do NOT lean over this appliance when lighting or when in use.
22. Do NOT breathe smoke from the fire or attached Smoke Generator and avoid getting it into your eyes.
23. This appliance should be thoroughly inspected and cleaned on a regular basis by trained personnel. Inspect this appliance and perform a leak test before turning on the system or attempting to ignite the pilot.

CONTINUES ➤

## FOR YOUR SAFETY

- 24. CAUTION:** The gas pressure regulator provided with this appliance must be used.
- 25.** The LP-gas supply hose must be disconnected when this appliance is not in use.
- 26.** Connect only to cylinders marked PROPANE or LPG.
- 27.** Do NOT use this appliance for any purpose other than professional fire training. Do NOT use for indoor heating. TOXIC carbon monoxide fumes can accumulate and cause asphyxiation.
- 28.** Do NOT use for cooking food.
- 29.** Do NOT use props when the temperature is below 32 degrees Fahrenheit (0 degrees Celsius).
- 30. Death, serious injury, or damage to property may occur if the above is not followed exactly.**



## 2. GENERAL FUNCTIONALITY

The Hose Line Training System (HLTS) is made up of the following components:

1. Console
2. Pilot Box
3. Burn Tray (*this is not used with all props*)
4. Propane hoses to connect the Pilot Box to the Burn Tray or Prop
5. All of the required electrical and signal cables to operate the system

Liquid Propane (LP) is delivered from the source to the BullEx Console. The Console contains a hand shutoff valve, a strainer for the LP, and two redundant solenoid valves. The solenoid valves are open only when the Console is energized and the **E-Stop** button is not depressed. The Console also contains two propane relief valves to prevent the system from being over pressurized.

The LP on the Console is connected to the Pilot Box using a flexible hose and quick connect fitting. An adjustable regulator is used at the end of the hose to regulate the amount of propane used by the system.

The Pilot Box contains a strainer and main solenoid gas valve. The main solenoid gas valve is controlled by the ignition controller system and is operated with the pilot gas valve. The main gas valve and pilot valve will remain closed until the air pressure in the forced air pilot nozzle is high enough and the pilot vaporizer is warmed up. Once both are ready, indicated by lights on the wired system controller or wireless system enclosure turning off, the pilot can be lit.

The LP for the pilot passes through a regulator and solenoid valve before going to a vaporizer. The vaporizer turns the liquid propane to vapor. The gaseous propane is ignited by a sparker and burned in the pilot burner. To prevent the pilot from being extinguished during training, it is built in a burner nozzle. The Pilot Box uses ionisation flame detection to determine if the pilot is lit and burning properly. The pilot box solenoid valves will shut if the flame is not detected.

The Pilot Box also contains four solenoid valves that control the flow to the four burn zones on the Prop. The valves are controlled independently using a wired or wireless System Controller. The zone solenoid valves will not open unless the pilot flame is detected. The propane is carried to the prop through flexible hoses with quick connect fittings to attach to the Pilot Box and Prop or Burn Tray.

The copper propane tubes on the Burn Tray or Prop contain orifice fittings that regulate the flow and turn the liquid propane into vapor. For the Burn Tray, the gaseous propane flows out of holes in the submerged copper tubing and rises to the water surface. The pilot burner which is located just above the water level will ignite the propane. Some special Prop burn zones such as the Wheel Fire zone on the Car Prop or the Engine Fire zone on the Helicopter do not use the Burn Tray. These zones flow propane directly into the atmosphere where it is ignited and burns.

When the **E-Stop** button is depressed, all solenoid valves close and power to the Pilot Box is turned off. Although no propane is flowing out of the Pilot Box, the Prop will continue to burn for several seconds while the remaining propane in the lines downstream of the Pilot Box is burned off.

## 3. FACILITY REQUIREMENTS

### **WARNING**

This appliance is for outdoor fire training use only.

Do not use in a building, garage, container, or any other enclosed area.

### 3.1 PROPANE REQUIREMENTS

1. Liquid supply required, not Vapor.
2. The supply should be at full tank pressure and no regulators should be included between the supply and the BullEx system.
3. The supply line should be a minimum of ½" diameter; some customers run ¾" lines to the training pad and split it off to ½ inch lines for multiple props.
4. The end connection on the Console is a ½" NPT threaded connection. Your system comes with a set of special quick disconnect fittings that can be used to connect to your propane supply so the Console can be easily disconnected from the supply. These fittings can be omitted and the system can be directly plumbed to your supply if desired.
  - i. When using the quick disconnect fittings we suggest that a short flexible line be used between the supply and the quick disconnect fitting to make setup easy. For optimum results the console should be located within 50' of the propane tank when using an above ground flexible hose.
5. Standard systems have a maximum flow rate of ten (10) liquid gallons per minute at full burn with an average being closer to 6 GPM. Please keep in mind that full burn is not used for that long during a typical evolution. In any case, you want to tell your gas provider of this max flow rate so the flow limiters on your supply tank are sized correctly and do not choke the system.

CONTINUES ➤

6. The minimum recommended supply size is 100 gallons. At the average flow rate that gives you about 17 minutes of continuous full burn time before the supply is exhausted, which gives you 6–8 evolutions per fill. The usage rate is highly dependent on how the equipment is used. Furthermore, the equipment can be adjusted to increase or decrease the maximum flow rates to suite your needs.

## 3.2 POWER REQUIREMENTS

1. Single-phase 110V, 20A circuit near where the console will be stationed.
2. It is easiest to have a weather-tight outlet at your electrical source.
3. The console can also be hard wired to your power connection if desired. Please let us know if you wish to do this.

## 3.3 STORAGE

1. Storing the props outside is acceptable but it is recommended you place a tarp or similar cover over the props when not in use.
2. Store the following components out of the weather:
  - a. Power cable for between the Console and Pilot Box
  - b. Pilot Box
  - c. System Controller (*applies to both Wired and Wireless*)
  - d. Sound System (*if equipped*). Speakers in props can be left with the prop.
  - e. Pilot Box Breather System (*if equipped*)
  - f. Smoke Generator Wireless Controller (*if equipped*)
  - g. If possible, store the remaining components out of the weather. This will increase the lifespan of the equipment.
  - h. In areas where subfreezing temperatures are expected, it is highly recommended that the entire system be kept out of the weather.

## 4. SYSTEM COMPONENT OVERVIEW

### 4.1 OVERVIEW

The Hose Line Training System (HLTS) is made up of the following components:

6. Console
7. Pilot Box
8. Burn Tray (*this is not used with all props*)
9. Propane hoses to connect the Pilot Box to the Burn Tray or Prop
10. All of the required electrical and signal cables to operate the system

### 4.2 CONSOLE

The Console is a mobile cart that holds an electrical enclosure and gas components. One side of the Console holds an electrical enclosure with the **E-Stop** button on it. The other side of the Console holds gas piping which includes the main solenoid valves for the gas system.

**A** Pressure Gauge

**B** Propane Relief Valve

**C** Propane Hose to Pilot Box

**D** Solenoid Valves

**E** Shutoff Valve with Strainer

**F** Propane Quick Connection Fitting to Source



FIGURE 4-1: GAS SIDE OF CONSOLE

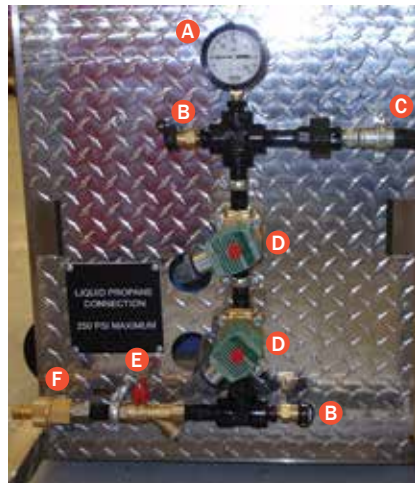


FIGURE 4-2: DETAIL OF GAS SIDE OF CONSOLE



FIGURE 4-3: ELECTRICAL SIDE OF CONSOLE WITH WIRELESS SYSTEM REMOTE



FIGURE 4-4: ELECTRICAL SIDE OF CONSOLE WITH WIRED SYSTEM REMOTE

### 4.3 PROPANE REGULATOR

The flow rate of propane used by the system can be adjusted using the Propane Regulator. To reduce or increase the flow rate, loosen the lock nut on the regulator and turn the adjustment screw. Turning the adjustment screw clockwise increases the pressure setting and therefore increases the propane flow rate. Turning the adjustment counterclockwise decreases the pressure setting and therefore decreases the propane flow rate.

#### NOTE

Do not completely unscrew the adjustment screw, this may damage the valve.

Do not remove the lock nut, this may allow the adjustment screw to damage the diaphragm.

The flow rate is affected by many other variables and the system may appear to be very sensitive or insensitive to regulator adjustments.

- A** Adjustment Screw
- B** Lock Nut
- C** Propane Regulator Set to Maximum Flow
- D** Quick Connect Coupling
- E** Propane Hose
- F** Propane Regulator Set to Reduced Flow

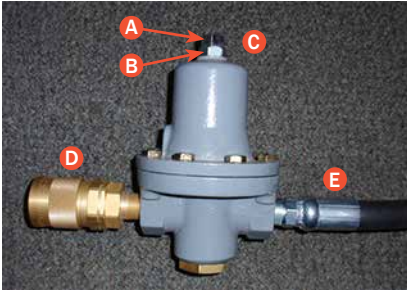


**FIGURE 4-5: PROPANE REGULATOR SHOWN SET TO MAXIMUM FLOW**

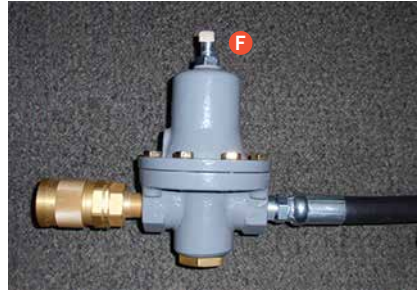


**FIGURE 4-6: PROPANE REGULATOR SHOWN SET TO REDUCED FLOW**

## 4.4 PILOT BOX

The Pilot Box is a stainless steel box containing the forced air pilot and solenoid valves that control the four burn zones. The Pilot Box takes in air through the air intake on the back of the box using a centrifugal fan. This air cools the internal components and helps keep air flowing through the pilot nozzle. The pilot nozzle has an additional centrifugal fan that forces air through the nozzle where propane is injected into the airstream and ignited using the sparkers in the nozzle.



**FIGURE 4-7: PILOT NOZZLE**



**FIGURE 4-8: PILOT BOX**

CONTINUES ➤

- A** Air Intake
- B** Smoke Generator Power Connection
- C** Smoke Generator Signal Connection
- D** Sound Connection (Wireless System Controller Only)
- E** Propane Relief Valve
- F** Propane Connection to Console
- G** Power Connection to Console
- H** Control Cable Connection



FIGURE 4-9: DETAIL OF BACK SIDE OF PILOT BOX

## 4.5 BURN TRAY

The Burn Tray is a 4' x 6' stainless steel tray containing copper tubing. The Burn Tray has four zones that the Pilot Box can be connected to.



### WARNING

Only trained, professional users should operate this appliance.

Always use in accordance with all applicable local, state and national codes including standards and guidelines for fire training.

**A** Overflow Pipe

**B** Drain Valve

**C** Propane Connections

**D** Hole for Pilot Nozzle

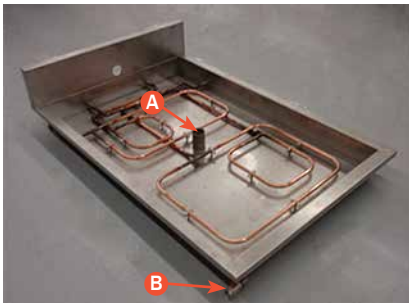


FIGURE 4-10: BURN TRAY

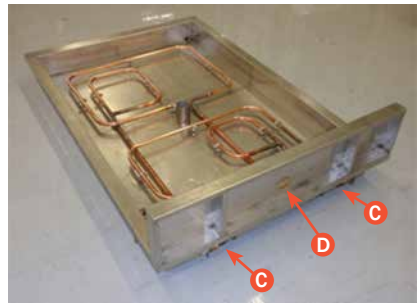


FIGURE 4-11: BURN TRAY OPPOSITE VIEW

## 4.6 WIRED CONTROL SYSTEM

The wired control system is made up of a control console (Console), a wired remote control (Wired System Remote), and the necessary cables and hoses. The Console is where the liquid propane supply and power supply connect to the training system.

The system can be set up such that the Console is permanently connected to the propane source or such that it can be disconnected using a special quick connect fitting.

 **CAUTION**

The propane must be supplied to the system in liquid form and not vapor.

The maximum supply pressure is 250 psi.

The training system uses pressure relief valves set to 250 psi. Supplying propane at or above 250 psi could result in venting propane from the system which can cause a dangerous situation. Proper caution must be taken.

The control panel is designed to be mobile but has provisions to be anchored in place if desired.

Power is supplied to the system using the provided 20 amp 120V power cord. The power cord plugs into the console via the weather resistant socket on the console. The power source must have a 20 amp breaker protecting the power supply.

**NOTE**

Connect all of the components of the training system before connecting the propane supply and power supply to the console. See the **“System Setup”** section of this manual to set up your console.

## 5. SYSTEM SETUP

### 5.1 BURN TRAY SETUP

The Burn Tray is used to simulate a flammable liquid spill.

1. Begin by selecting a suitable location for training.
  - a. The burn zone should be at least 30 ft (9m) from any other cars, buildings, or other environmental obstructions.
  - b. The burn zone **MUST** be at least 50 ft (15m) from other readily combustible materials.
2. With at least two people, bring the Burn Tray to the training location and place it on the ground.
3. Make sure the drain valve is closed on the Burn Tray and fill the tray with water until it overflows out of the pipe in the center of the Burn Tray.



#### **WARNING**

Do not operate the system without water in the Burn Tray. The copper tubing in the tray must be completely covered with water before using.

Periodically check the water level during the training session since the water level will drop during use.

4. With two people, bring the Pilot Box to the Burn Tray and guide the pilot burner nozzle through the hole in the back of the Burn Tray. Make sure the Pilot Box is completely pushed into position; the Pilot Box and Burn Tray should be touching.
5. If using suppressants other than water, attach the supplied elbow or Fresh Air Breather System to the air inlet on the Pilot Box to prevent water from being ingested into the Pilot Box.
6. Connect the Pilot Box propane outlets to the Burn Tray using the provided hoses.
  - a. There are four outlets on the Pilot Box. All four **MUST** be connected before operating the system.

**WARNING**

**ALL FOUR PROPANE OUTLET CONNECTIONS FROM THE PILOT BOX  
MUST BE CONNECTED BEFORE USE.**

Operating the system without connecting all four connections could result in spraying propane out of the Pilot Box which could result in death or serious injury.

## 5.2 WIRED CONTROL SYSTEM SETUP

### CONNECTING AND STARTING THE SYSTEM

1. Ensure that all components in the system, including hoses and cables, are free of visible defects before each use. Perform a gas leak test as described at the end of this manual before attempting to ignite the HLTS.

**WARNING**

This appliance should be thoroughly inspected and cleaned on a regular basis by trained personnel. Inspect this appliance before turning on the system or attempting to ignite the pilot.

Do not use damaged components. Using damaged components could result in death or serious injury.

Complete a gas leak test before each use.

Contact BulEx at 1-888-4BULLEX immediately if any defects are found.

**⚠ WARNING**

Operators must wear proper PPE (personal protective equipment) in accordance with NFPA and local fire training standards when setting up, operating and breaking down this appliance.

Trainees and any other observers within proximity of training must wear proper PPE in accordance with NFPA and local fire training standards when using this appliance.

2. Ensure the Prop (if applicable), Burn Tray (if applicable), and Pilot Box are set up and connected together as specified in the “Burn Tray Setup” section of this manual and Prop Setup Manual for the Prop you are using.
3. Depress the **E-Stop** Button on the console.



**FIGURE 6-1: (STEP 3) DEPRESS E-STOP  
BUTTON ON CONSOLE**

CONTINUES ➤

4. Connect the power cable to the Console and Pilot Box. Make sure the blue collar on the power cable is screwed on clockwise to completely make the connection.
5. Connect the Wired Controller to the Pilot Box. Make sure the latch on the Pilot Box is engaged to secure the control cable.
6. Connect the supplied propane hose, which is attached to the Console, to the Pilot Box. Make sure the quick connect fittings at the Pilot Box are fully engaged. The supply hose must be depressurized during the shutdown procedure.



**FIGURE 6-2: (STEP 4) POWER CABLE BETWEEN CONSOLE AND PILOT BOX**



**FIGURE 6-3: (STEP 4) POWER INLET ON PILOT BOX; POWER CONNECTION ON PILOT BOX**



**FIGURE 6-4: (STEP 5) WIRED SYSTEM CONTROL CABLE**



**FIGURE 6-5: (STEP 5) WIRED SYSTEM CONTROL CABLE; CONTROL CABLE CONNECTION**

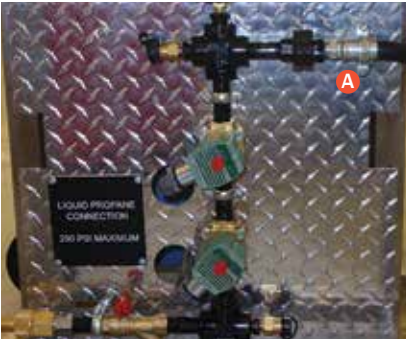


FIGURE 6-6: (STEP 6) PROPANE HOSE FROM CONSOLE



FIGURE 6-7: (STEP 6) PROPANE CONNECTION TO PILOT BOX

7. If your system is equipped with an optional Smoke Generator, make sure all connections have been made and the Smoke Generator is switched on. See the **Prop Manual** for instructions on how to connect your Smoke Generator. The Smoke Generator will not power on since the console is not energized at this time.
  - a. Read the **Smoke Generator User Manual** before operation and follow all guidelines. See the appropriate section of this manual for specific directions on how to connect and set up the Smoke Generator if applicable.
  - b. Note that for systems with a Wired System Remote, the smoke machine is controlled by a separate wireless remote specifically for the Smoke Generator.
8. If your system is equipped with an optional sound system, make sure all connections have been made. The sound system will not power on since the console is not energized at this time.
  - a. See the appropriate **Prop Manual** for specific directions on how to connect and set up the sound system.

CONTINUES ➤

9. If your Console is not already connected to a propane supply:
  - a. Make sure the valve on the Console is turned off (the handle should be perpendicular to the pipe).
  - b. Connect the Console to your propane source using the quick connect fittings on the Console. Make sure the quick connect fittings are fully engaged.
10. Slowly open the hand valve on the Console.

**⚠ WARNING**

Make sure the relief valves on the Console are not bleeding propane.

**Press the E-Stop button and close the hand valve on the Console immediately if the relief valves are bleeding propane.**

Bleeding propane could result in death or serious injury.

Verify that the supply pressure is less than 250 psi.

Contact BullEx if the supply pressure is less than 250 psi and the relief valves are bleeding propane.

11. Connect the Console to your power source. There is an electrical tail at the electrical enclosure on the Console.
12. Pull out the **E-Stop** Button on the Console. You should hear a click as the solenoid valves on the Console open. The system is now energized and the two solenoid valves on the Console are open.
13. Verify that the relief valves on the Console are not bleeding propane.



**FIGURE 6-8: (STEP 9) SHUTOFF VALVE WITH STRAINER SHOWN IN THE OFF POSITION**



Make sure the relief valves on the Console are not bleeding propane.

**Press the E-Stop button and close the hand valve on the Console immediately if the relief valves are bleeding propane.**

Bleeding propane could result in death or serious injury.

Verify that the supply pressure is less than 250 psi.

Contact BullEx if the supply pressure is less than 250 psi  
and the relief valves are bleeding propane.

14. The “POWER” light on the Wired Controller should be on, indicating that the system is energized.
15. Wait for the “AIR PRESSURE LOW” and “VAPORIZER COLD” lights on the controller to turn off. This may take several minutes as the system warms up.
16. Make sure it is safe to light the pilot flame on the Pilot Box.
17. Press the **Pilot On** button to ignite the pilot.
  - a. A sparker lights the pilot and ignition is confirmed by ionization flame detection.
  - b. The “Pilot On” LED will be lit after the button has been pressed.
  - c. The pilot will attempt to light for 2 minutes, after which it will turn off if unsuccessful. The zones on the Pilot Box will not open until flame from the pilot is detected.
18. The system is now ready to start a simulation.
19. To turn the pilot off, press the red **PILOT** button on the Wired Controller or press the **E-Stop** button on the Console.

CONTINUES ➤

## 6. SYSTEM OPERATION

### 6.1 USING THE SYSTEM

Once the console has been powered on and the pilot ignited following the steps in Section 5, the HLTS is ready for training evolutions.

There are four burn zones. Using the Wired Controller, press and hold **“Valve 1”** to start flames in burn zone 1. To stop the flames, simply release the **Valve 1** button. During training evolutions, trainees can use extinguishing media to knock down and extinguish the flames. Flames will automatically reignite until you release the button. To stop both the flames in the burn zone, and the pilot flame, depress the **Emergency Stop** button at the console, or press the **Pilot Off** button on the controller.

To direct flames in other burn zones, press and hold the **Valve** button or buttons for the desired zones. You can ignite more than one burn zone at a time by pressing multiple buttons. For example, press the **“Valve 1”** and **“Valve 3”** buttons to create flames in burn zone 1 and 3. If you wish to ignite all burn zones simultaneously, you can also press the **“Multiple Valves”** button.

If you have connected your HLTS to an optional BullEx Prop, see the applicable Prop Manual for specifics on how to operate that prop. If you have an optional Wireless Controller, see the Wireless Controller manual.

### 6.2 TRAINING TIPS

- Become familiar with the system and its capabilities so that the best training scenarios can be simulated.
- There is some LP still in the burners after releasing the button(s), but the button(s) can be pulsed to produce diminishing flames.
- It is a good idea to have someone watching the training but near the Control Panel's **Emergency Stop** button.
- Follow all applicable local, state and national codes including NFPA standards and guidelines for fire training.

## 7. SHUTTING DOWN THE SYSTEM

1. At the end of a training session, the propane hose between the Console and Pilot box, as well as the propane supply line between your propane source and Console must be depressurized. If the Console will be disconnected from your main propane supply, you should depressurize the main supply line to the Console. Depressurization is accomplished as follows:
  - a. Turn off the valve at the main supply source.
  - b. Make sure the burners are safe to turn on then light them. The flames should light normally, but will gradually decrease in size as excess propane is burned off. The decreased size of flame indicates that the supply line and supply hose between the Console and the Pilot Box are depressurizing. This may take several minutes.
    - i. Observe the pressure gauge on the Console. The pressure will remain constant for a while after you have started the fire in the Burn Tray.
    - ii. Cool the prop during this process to keep the temperature of the Prop within acceptable limits.
    - iii. After a few minutes the pressure will begin to drop as the last of the propane in the system is burned.
    - iv. Wait for the flames to go out and pressure on the gauge to drop to 0 psi, then stop the burners.



**FIGURE 7-1: (STEP 1) SHUTOFF VALVE WITH STRAINER SHOWN IN THE OFF POSITION**

2. Wait for the pilot flame to go out as the last of the propane is used. The Pilot light on the Wired System Remote will go out when the pilot flame goes out.
3. Wait several minutes for the Pilot Box, Burn Tray, and Prop to cool down. Douse with water, as needed, to cool the system.
4. Press the **E-Stop** button on the Console to de-energize the system.
5. See the applicable **Prop Manual** for directions on how to disconnect your Prop.
6. Disconnect the system hoses and cables:
  - a. Disconnect power cable between the Pilot Box and Console.
  - b. Disconnect the Wired System Remote from the Pilot Box.
  - c. If applicable, disconnect the Smoke Generator connection from the Pilot Box.
  - d. If applicable, disconnect the speaker wire from the speaker and Console.
  - e. Disconnect the propane hose between the Console and Pilot Box at the pilot box. The propane hose is permanently connected to the Console and should not be disconnected.
  - f. Disconnect the power supply to the Console.
  - g. Disconnect the propane supply hose to the Console if desired and equipped with a quick disconnect fitting.
7. Inspect the equipment for damage before putting it away. Contact BullEx if any damage is found.
8. Store the following components out of the weather:
  - a. Power cable for between the Console and Pilot Box
  - b. Pilot Box
  - c. Wired System Remote
  - d. Sound System (*if equipped*). Speakers in props can be left with the prop.
  - e. Pilot Box Breather System (*if equipped*)
  - f. Smoke Generator Wireless Controller (*if equipped*)
  - g. If possible, store the remaining components out of the weather. This will increase the lifespan of the equipment.

## 8. TROUBLESHOOTING

If you have a question that is not answered by reading this manual, contact BullEx at 1-888-4BULLEX for assistance.

1. **Symptom:** A cable or hose is frayed or questionable.
  - a. Safely shutdown the system and contact BullEx before using the system.
2. **Symptom:** Pilot Box is making a loud buzzing noise when energized.
  - a. There is likely a problem with one of the solenoids inside the Pilot Box. Contact BullEx for assistance.
3. **Symptom:** The flames are small.
  - d. Check the pressure at the Console and at the propane source. Discrepancies between these readings indicate the problem is between these two gauges.
  - e. Verify that the propane tank and supply lines are open.
  - f. Verify that the hand valve on the Console is open.
  - g. Verify that all electrical connections have been made correctly.
  - h. Adjust the regulator to increase the pressure. See the “Console” section of this manual for information on the regulator.
  - i. Low ambient temperatures can cause low supply pressures. In some circumstances tank heaters may be required to increase the supply pressure.
  - j. High ambient temperatures can cause the propane to vaporize early, restricting the flow rate. Perform the maintenance procedure on the system.
  - k. Contact BullEx for further assistance.
4. **Symptom:** The flames are too large.
  - a. Adjust the regulator to decrease the pressure. See the “Console” section of this manual for information on the regulator.
  - b. The flame height and propane usage can be altered during a simulation by pressing and releasing the valve buttons at different intervals. For example, press the “multiple valves” button for two seconds then release the button for two seconds; repeating this process will reduce the amount of propane used for a given period and reduce the flame height.

## 9. MAINTAINING THE SYSTEM

1. Inspect the equipment for damage before and after every use.
2. Perform a gas leak test before each use.
3. Check the tightness of connections on a Burn Tray every fifth training session or annually.
  - a. With a wrench check the tightness of the indicated connection points in the figure below on all four zones. Try to tighten the connections by turning them clockwise. You are only checking to ensure the connections are not loose so only a small amount of force is necessary.

**A** *Hose to Bulkhead*

**B** *Union*

**C** *Union to Elbow*

**D** *Elbow to Tray*



**FIGURE 7-1: (STEP 3) CHECK THE TIGHTNESS OF THE INDICATED CONNECTIONS**

4. Clean the orifices on the Prop:
  - a. After every training session for the first three uses
  - b. After every fifth training session
  - c. If you are experiencing poor lighting or persistent small flames in one or more zones
  - d. To clean a Burn Tray Orifice and check connections:
    - i. Disconnect propane hoses from the Burn Tray
    - ii. Unscrew the Orifice from the Tray Bulkhead
    - iii. Unscrew the Male Quick Connect Fitting from the Orifice
    - iv. Clean the Orifice using the supplied cleaning wire and/or compressed air
    - v. Reassembly is opposite of disassembly
    - vi. Check for leaks once the system is set up and operational. Retighten fittings if necessary to stop leaks.

**⚠ CAUTION**

If the hoses are clogged there may be residual propane trapped in the hose. Always wear hand and eye protection before performing maintenance on the system.

- A** Tray Bulkhead
- B** Orifice
- C** Male Quick Connect Fitting

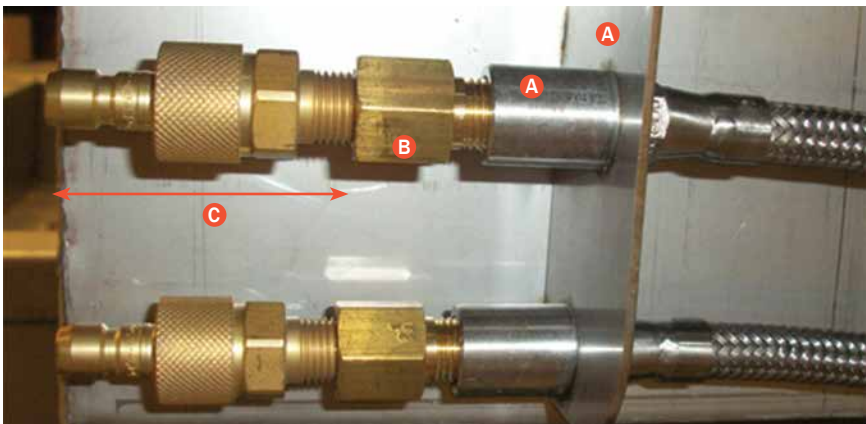


FIGURE 7-2: (STEP 4)

## 9.1 LEAK TEST

**A complete gas tightness check must be performed at the site of use. Check the propane supply system for leaks before each use. Immediately check the system if the smell of gas is detected.**

**Do not smoke while leak testing. Extinguish all open flames. Never leak test with an open flame.**

## 9.2 TESTING PROCEDURE

1. Mix a solution of equal parts mild detergent or liquid soap and water (or use gas leak detector available at your local plumbing supply store).
2. Ensure the Hoseline Training System is unplugged/de-energized. This ensures the safety shut off valves to the burners and pilot are closed.
3. Connect the propane regulator and hose assembly as directed in the Set-Up Instructions.
4. Turn the valve of the propane supply tank until fully open.
5. Apply the soap solution to all connections of the fuel supply assembly, including between the propane tank and the control console and the control console and the pilot box, and the between the pilot box and burners. If bubbles form at any of the connections, a leak is detected. If a leak is detected, immediately turn off the gas supply and contact BullEx at 1-888-4BULLEX. Otherwise wipe down system and proceed with the start-up instructions detailed in the manual.



**WWW.BULLEX.COM**

20 Corporate Circle • Albany, NY 12203 USA

Toll Free: 1-888-428-5539 • 518-689-2023