



**LION**<sup>®</sup>  
ready for action

**I.T.S. XTREME™  
TRAINING  
SYSTEM  
&  
INTELLIGENT  
TRAINING  
SYSTEM™**



**FIRE EXTINGUISHER  
TRAINING SYSTEMS**

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**[ USER'S MANUAL**

Original User Manual  
04/19



	 <b>WARNING</b>
	<p>Read and understand operator's manual before using this machine.</p> <p>Failure to follow operating instructions could result in death or serious injury.</p>

	 <b>WARNING</b>
	<p><b>IMPROPER USE MAY RESULT IN FIRE OR INJURY.</b></p> <p>Read instructions/safety manual before installing, operating or servicing.</p>

	 <b>WARNING</b>
	<p><b>FOR OUTDOOR USE ONLY!</b></p> <p>Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliances.</p>

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*\*DENOTES I.T.S. XTREME TRAINING SYSTEM*

# 1. HOW THE INTELLIGENT TRAINING SYSTEM™ (I.T.S.) WORKS

The Intelligent Training System (I.T.S.) Fire Extinguisher Training System utilizes patented sensor technology to detect how well the trainee uses the SmartExtinguisher®. I.T.S. can sense if the user has aimed at the base of the fire, is properly squeezing the extinguisher handle, and is properly sweeping the nozzle of the extinguisher.

The four sensors on the I.T.S. base unit detect the discharge of compressed air and water vapor from the SmartExtinguisher. The onboard microprocessor based control system then varies the flow of propane to each burner via electronic gas valves to increase or decrease the size of the flames.

To successfully extinguish the fire, the trainee must sweep the extinguisher across the base of the fire. If the trainee aims just below, or just above the base, the flames will go down, but will not extinguish. If the trainee only aims at one side of the fire, that side will be extinguished while the other side continues to grow.

The sensors are critical to the operation of the system and should be treated with care to ensure the long-life of the Intelligent Training System. I.T.S. comes with a sensor guard which should be placed over the ultrasonic housing whenever I.T.S. is not in use.

**The use and installation of this product must conform to local codes. In absence of local codes, use the National Fuel and Gas Code, ANSI Z223, NFPA 54, Storage and Handling of Liquid Petroleum Gases, ANSI/NFPA 58 or CSA B149.1, Natural Gas and Propane Installation Code.**

RATINGS	
Fuel: Liquid Propane	Gas Supply 2 PSI Max (0.1 bar)
Input: 375,000 Btuh (109.8kW)	Duty Cycle: 50%
Electrical: 12 VDC Input @ 5 A Max	

## SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

### DISCLAIMER

Purchaser assumes all risk in the assembly and operation of this unit. Failure to follow this manual's WARNINGS and instructions can result in severe personal injury, death or property damage. LION is not responsible for any damage, death or injury that may arise from improper or misuse of I.T.S.

## FOR YOUR SAFETY

1. This appliance is for outdoor use only on noncombustible surfaces. Do NOT use in a building, garage, or any other enclosed area.
2. DO NOT USE FOR SPACE HEATING. TOXIC carbon monoxide fumes can accumulate and cause asphyxiation.
3. Always use in accordance with all applicable local, state and national codes. Contact your local fire department for details on outdoor burning.
4. DO NOT LEAVE UNATTENDED. When using this appliance, exercise the same precautions you would with any open fire.
5. The use of alcohol, prescription or non-prescription drugs may impair the consumer's ability to safely operate this appliance.
6. Do NOT use this appliance without reading the entire "User's Manual."
7. Do NOT alter this appliance in any manner.
8. Do NOT store or use gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.
9. Do NOT use this appliance within 20 ft. (6.1 m) of automobiles, trucks, vans or recreational vehicles.
10. Do NOT use in an explosive atmosphere. Keep the area surrounding the appliance free and clear from combustible materials, gasoline and other flammable liquids.
11. 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.
12. Always use this appliance on a hard, level, non-combustible surface such as concrete, rock or stone. Do NOT use on wooden decks.
13. Do NOT smoke while using unit.
14. Always fill this appliance with the proper amount of water specified in the "Set-Up Instructions" before each use.
15. Do NOT wear flammable or loose clothing when operating this appliance.



## WARNING

16. Do NOT use in windy conditions.
17. Do NOT attempt to manually light the pilot.
18. All surfaces of this appliance are hot when in operation. To avoid burns, do NOT touch appliance until it has completely cooled for at least 15 minutes.
19. Do NOT attempt to move or store I.T.S. until completely cooled.
20. Do NOT move this appliance when the burn pan contains water.
21. Do NOT lean over this appliance when lighting or when in use.
22. Avoid breathing smoke from the fire and avoid getting it into your eyes.
23. This appliance should be thoroughly inspected and cleaned on a regular basis by trained personnel.
24. CAUTION: The gas pressure regulator provided with this appliance must be used. This regulator assembly is set for an outlet pressure of 2 PSI (0.1 bar) (55 in. [140 cm] water column).
25. The propane gas supply tank must be disconnected when this appliance is not in use.
26. Connect only to tanks marked PROPANE or LPG.
27. Do NOT use for cooking food.
28. Do NOT use I.T.S. when the temperature is below 32° Fahrenheit (0° Celsius).
29. Do NOT drop I.T.S. If you do drop your I.T.S., inspect thoroughly before use.
30. **Death, serious injury or damage to property may occur if the above is not followed exactly.**

### FOR I.T.S. XTREME™ – PROPS ONLY

31. Do NOT change props until the prop is completely cool.
32. Use gloves when changing/removing props.

## 2. SAFETY FIRST!

1. Read and become familiar with this entire manual, especially the preceding warnings and following precautions.
2. If you are unsure of anything in these instructions, **STOP** and contact **your distributor or LION** for assistance.
3. **Caution: This appliance is for outdoor use only (outside any enclosure).**
4. Always maintain at least 20 ft. (6.1 m) clearance (side) from combustible materials (for example wood, paper, gasoline).
5. Always place I.T.S. on a hard and level surface.
6. Do not use if the wind velocity is greater than 10 mph (16 kph).
7. Unit will operate at reduced efficiency below 40°F (5°C). Do not use below 32°F (0°C).
8. Keep sprinklers and other water sources away from controls.
9. Always use extreme caution when near I.T.S. Alert both children and adults to the hazards of high temperatures, especially to avoid burns or clothing catching fire.
10. No one should be in the vicinity of I.T.S. unless under strict supervision.
11. Any guard, such as the pilot housing or other protective device, that is removed for servicing must be replaced prior to operating the I.T.S.
12. Do not alter I.T.S. in any manner.
13. The pressure regulator and hose assembly supplied with the appliance must be used and replacements must be those specified by the manufacturer.
14. Inspect I.T.S. before each use. If a damaged part is detected, do not operate until an original equipment replacement part has been properly installed. Use of unauthorized parts will void warranty and create an unsafe condition.
15. Do not attempt to use this appliance without a functional factory supplied gas regulator in place. If regulator becomes damaged, contact **your distributor or LION** for assistance.
16. During operation, do not touch burner assembly. The surface of I.T.S. can reach temperatures approaching 1,600°F (871 °C).
17. After shutdown, do not touch burner assembly until I.T.S. has completely cooled.
18. This product should not be used with any fuel other than propane. Use of other fuels is dangerous and will void your warranty.
19. I.T.S. must be used with water. Running the system without water or any other liquid will void the warranty.
20. Do not use in an explosive atmosphere. Keep I.T.S. away from areas where flammable liquids, gasoline, vapors, or explosives are stored or used.

### FOR I.T.S. XTREME™ – PROPS ONLY

21. Use protective work gloves at all times when handling optional LION Props.
22. Only use LION manufactured optional Props. When using LION Props, the I.T.S. must be set to "Prop Mode." Do not attempt to use Props in "Standard" or "FULL" mode. Do not attempt to discharge extinguishers on Props when in "Evacuate Mode."

### 3. INTELLIGENT TRAINING SYSTEM™ SPECIFICATIONS

The Intelligent Training System (I.T.S.) is intended to provide safe and cost effective live fire extinguisher training. I.T.S. should be used outdoors on a non-combustible surface with adequate clearance from any combustible or flammable materials.

**I.T.S. is not intended to be used as a heater, fireplace or cooking appliance and should not be used as such.**

The maximum inlet gas supply pressure is 2 PSI (.01 bar). I.T.S. is designed to be supplied by a standard 20 lb. (9.1 kg) propane tank. The regulator and supply hose provided with I.T.S. should be attached directly to the 20 lb. (9.1 kg) propane tank.

NUMBER	PART DESCRIPTION
1.	I.T.S. Xtreme™ (Base Unit)
2.	5X SmartExtinguisher®
3.	7X SmartExtinguisher
4.	Handheld Controller
5.	Controller Cable
6.	Power Cable
7.	Propane Hose and Regulator Assembly
8.	Accessories Carrying Case
9.	Measuring Cup
10.	Funnel
11.	Sensor Guard
12.	User Manual
13.	Training CD/DVD

#### PARTS LIST

To order replacement parts contact your distributor or LION for assistance.

## 4. LION OPTIONAL ACCESSORIES



### A 5X SMARTEXTINGUISHER®

Red rechargeable training extinguisher. Discharges five times before requiring a water refill.

### B 7X SMARTEXTINGUISHER

Red rechargeable training extinguisher. Discharges seven times before requiring a water refill.

### C AIR COMPRESSOR\* (6 GAL.) OR AIR REGULATOR

6 Gallon upright air compressor with a maximum 150 PSI (10.3 bar). (Fill SmartExtinguishers to 100 PSI (6.9 bar)). Equipped with a 3 HP motor. Ships with premium air hose (50 ft. [15.2 m]) and brass fitting kit.

Air Regulator for charging extinguishers with SCBA bottle. Ships with 10 ft. (3.0 m) air hose.

### D BATTERY POWER PACK

Power I.T.S. without a vehicle using these portable, rechargeable 12V power packs. Powers I.T.S. for eight hours.

### E I.T.S. TRANSPORT CASE

This black industrial grade high impact plastic case can be used to quickly and easily transport I.T.S. to and from various sites to conduct training. Includes a retractable pull handle and built-in wheels. Locking latches provide safe and secure storage of the system when not in use. **Interior dimensions:** 30" x 25" x 15." (76 x 64 x 38 cm). **Transports:** I.T.S. Base Unit, handheld controller and cable, funnel, measuring cup, power cable, propane supply kit and recharge accessories.

\*Product availability and design may differ by location.



## 5. LION SERVICE PLANS

Need Assistance? Please see contact information on page 51.

## FUEL REQUIREMENTS

Use only the pressure regulator and hose assembly supplied with I.T.S. or a replacement pressure regulator and hose assembly specified by LION.

### NOTE

A standard 20 lb. (9.1 kg) propane tank is required when operating I.T.S.  
Propane tanks can be purchased separately at an independent dealer.

## PROPANE TANK INFORMATION

- Never use a dented or rusted propane tank with a damaged valve.
- Propane tanks must be equipped with an Overfilling Prevention Device (O.P.D.). The device shuts off the flow of gas to a tank after 80% capacity is reached. This limits the potential for release of gas when the tank is heated, creating a fire or possible injury.
- The propane tank must be constructed and marked in accordance with the specifications for propane tanks of the U.S. Department of Transportation (DOT) or the National Standard of Canada, CAN/CAS-B339, "Cylinders, Spheres and Tubes for the Transportation of Dangerous Goods."
- The usage must conform with local codes or, in absence of local codes, with the Standard for Storage and Handling of Liquefied Petroleum Gases, ANSI/NFPA 58 and the Natural Gas and Propane Installation Code, CSA B149.1.

## 6. PROPANE TANK USE

When turning the propane tank on, make sure to open the valve slowly and completely to insure proper gas flow. Most gas tanks are equipped with a leak detector mechanism internal to the tank, when gas is allowed to escape rapidly it shuts off the gas supply. Opening the valve rapidly may simulate a gas leak, causing the safety device to activate, restricting gas flow and causing low flames. Opening the valve slowly will insure this safety feature is not falsely triggered.

When supplying the Intelligent Training System™, the propane tank should always be placed upright, as shown in the adjacent diagram, so as to draw only propane vapor from the tank.

**Attempting to place the propane tank in any other orientation is dangerous and will damage I.T.S. components. This action will void the warranty.**



**If at any time the propane tank tips over, immediately unplug the power cable, straighten the tank, close the valve on the propane tank and wait five minutes before using the system as liquid propane may have spilled into the regulator. Consult propane supplier for more safety instructions.**

- The propane tank must include a collar to protect the tank valve.
- Storage of an appliance indoors is permissible only if the tank is disconnected and removed from the appliance.
- Tanks must be stored outdoors in a well-ventilated area out of reach of children. Disconnected tanks must have threaded valve plugs tightly installed and must not be stored in a building, garage or any other enclosed area.

IMPROPER USE MAY RESULT IN SERIOUS INJURY OR DEATH

## 7. INTELLIGENT TRAINING SYSTEM™ INTRODUCTION

Pages 11–48 contain the usage instructions for the Intelligent Training System. Read these instructions in their entirety before using the system. These operations include:

### **PRE-OPERATION LEAK TESTING**

This section details how to check your propane equipment for leaks before usage. LION recommends testing your equipment at least once every six months.

### **I.T.S. SET-UP INSTRUCTIONS**

This section begins with removing the system from its packaging and explains all the set-up instructions for the I.T.S. base unit, including propane supply, power supply, controller connections, filling the burn pan, leveling the base unit, and setting the engagement distances for the SmartExtinguishers.

### **SMARTEXTINGUISHER® INSTRUCTIONS**

This section details SmartExtinguisher charging, recharging, and usage.

### **I.T.S. USAGE INSTRUCTIONS**

This section explains how to unlock the controller, how to change the difficulty level and class, how to light the pilot, how to conduct a training evolution and a list of the I.T.S. safety features.

### **I.T.S. SHUT DOWN OPERATIONS**

This section details shutting down the I.T.S.

## 8. PRE-OPERATION LEAK TESTING PROCEDURE

Although all gas connections on the appliance are tested prior to shipment, a complete gas tightness check must be performed at the site of use. This is due to possible shifting during transportation, assembly or excessive pressure unknowingly being applied to the unit. Periodically check the whole system for leaks and 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. 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).

### TESTING PROCEDURE

1. Ensure I.T.S. is unplugged/de-energized. (This ensures the safety shut off valve to the burners and pilot are closed).
2. Connect the propane regulator and hose assembly as directed in the **Set-Up Instructions**.
3. Turn the valve of the propane tank counterclockwise until fully open.
4. Apply the soap solution to connections of the fuel supply assembly. If no soap bubbles appear, there is no gas leak. If bubbles form at the connections, a leak is detected. If a leak is detected, immediately turn off the gas supply and contact LION. Otherwise wipe down system and proceed.
5. Turn off the valve on the top of the propane tank.
6. Disconnect the propane hose and regulator assembly.
7. Wash off hose assembly with water and towel dry.
8. Wipe down with rag.

Inspect all gas supply fittings before each use and each time the propane tank is connected to the regulator. Have a qualified service technician leak test the appliance any time a part of the gas system is replaced.

It is recommended to perform a leak test at least twice a year.

### LEAK TESTING NOTES

## 9. I.T.S. SET-UP INSTRUCTIONS

### SET-UP FOR OPERATION

1. Place the I.T.S. base unit in an open area away from all combustibile materials. I.T.S. should be placed downwind of the trainee. The wind should be at the trainee's back blowing into the front of the system.
2. Remove the sensor guard by pulling from the center above the LION LOGO. See *Figure 1*. Attempting to remove the sensor guard at another location will be more difficult.
3. Inspect the entire I.T.S. system for any signs of physical damage.

If there is any sign of physical damage – STOP and contact your distributor or LION for assistance.

4. Plug the male end of the controller cable (black cable) into the appropriate connector on the rear of the I.T.S. base unit. See *Figure 2*.
5. Plug the female end of the controller cable into the connector on the Handheld Controller.
6. Attach the yellow power cable to the rear of the I.T.S. base unit by lining up the guide marks on the inside of the plug and screwing the connectors together. See *Figure 3*.



EXAMPLE SETUP



FIGURE 1: REMOVING THE SENSOR HOUSING

7. Place the propane tank 8–10 ft. (2.4 m–3.0 m) behind the I.T.S. base unit.
8. **Place the gas hose in a safe position; place the hose out of pathways where people may trip over it or in areas where the hose may be subject to accidental damage.**
9. Ensure the valve on the propane tank is closed completely.
10. Thread the propane fitting into the tank. Tighten the connection until snug. See *Figure 4*.
11. Connect the quick disconnect end of the propane hose to the quick disconnect propane inlet on the rear of the I.T.S. base unit. To do this pull the front of the coupling back and insert the coupling into the plug. Push it forward until a click is heard. See *Figure 5*.
12. Slowly open the valve on the propane tank.
13. Fill I.T.S. burn pan with water. (See Page 16 for more instructions).

continues >



FIGURE 2: CONTROLLER CABLE



FIGURE 3: POWER CABLE



FIGURE 4: PROPANE HOSE THREADED INLET



FIGURE 5: PROPANE HOSE QUICK DISCONNECT OUTLET



14. Plug the male end into a 12 Volt receptacle. (A vehicle's 12V cigarette lighter – *Figure 6*, or “12V power pack” – *Figure 7*, may be used. See **LION Optional Accessories** on page 6).

### NOTE

Any vehicle, power supply, or combustible materials should be a minimum of 20 ft. (6.1 m) from the I.T.S. Xtreme™ base unit.

### ⚠ WARNING

Only use Yellow Power Cable with 12 VDC source.  
DO NOT use with 110 V inverter, transformer,  
or any other similar device. Doing so will void warranty.

The appliance should be inspected before each use and at least annually by a qualified service person. More frequent cleaning may be required as necessary.

It is imperative that the burners and burn pan on I.T.S. be kept clean.

The pressure regulator and hose assembly supplied with the appliance **MUST** be used and replacement pressure regulators and hose assemblies must be those specified by the appliance manufacturer. **DO NOT** alter any part of the hose assembly!



FIGURE 6: 12VDC CAR OUTLET



FIGURE 7: 12VDC BATTERY PACK

**⚠ CAUTION**

This appliance shall only be used outdoors in a well-ventilated space and shall not be used in a building, garage or any other enclosed area.

Inspect the burners before each use. Make sure the quick disconnect plug (see *Figure 5*) on the system is solidly secured.

The burner must be replaced prior to the appliance being put into operation if it is evident that the burner is damaged. The replacement burner shall be that specified by LION.

**I.T.S. must be located at least: 8 ft.–10 ft. (2.4 m–3.0 m) in the U.S.; or 10 ft. (3.0 m) in Canada, from any propane gas container.**

**15. IMPORTANT! I.T.S. must be filled with water to the “overflow” marks on the sidewalls of the burn pan before use.** This will prevent overheating. Operating the system without filling with water as directed in this manual will void the warranty (*Figure 8* and *Figure 9* below).

1. **Do NOT pour water over the pilot assembly**
2. **Do NOT pour water into the burners**
3. **Only pour water into open areas inside the burners**

continues >



FIGURE 8: FILLING I.T.S. BURN PAN

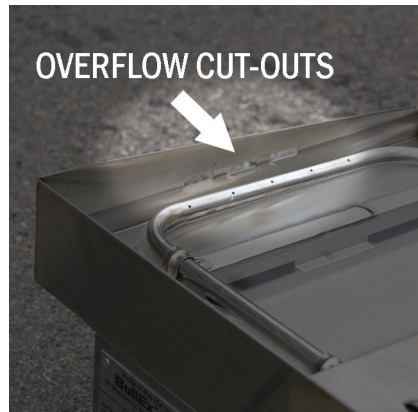


FIGURE 9: OVERFLOW CUT-OUTS

## 16. Level I.T.S. — The base unit must be level prior to use.

1. Using the adjustable feet, ensure I.T.S. is stable and level.
2. The feet may be adjusted from the bottom of I.T.S. by turning clockwise or counterclockwise. Use water in the burn pan to determine if I.T.S. is level.
3. Use overflow cut-outs to see if the I.T.S. unit is level. This can be done by checking the water level on either side of the I.T.S. unit. The water should be the same height on both sides relative to the overflow cut-outs.

## 17. Set the Distance Mark

1. Measure 8 ft (2.4 m) from the front of the I.T.S. unit and mark the ground. This distance is where the trainee will stand when using a 5X or 7X SmartExtinguisher® to extinguish the flame.
  2. Trainees should remain behind these marks at all times during training with I.T.S.
18. Before operating the system for the first time ensure that the proper pre-operation leak testing has been completed as directed in the **Pre-Operating Leak Testing** section.
19. Inspect the appliance before each use and at least annually by a qualified service person.
20. The hose assembly shall be visually inspected prior to each use of the appliance. If it is evident there is excessive abrasion or wear, or the hose is cut, it must be replaced prior to the appliance being put into operation. The replacement hose assembly shall be that specified by the manufacturer.
21. Set up the compressed air source and water source. SmartExtinguishers require a compressed air source capable of providing 100 PSI (6.9 bar) consistently during the use of the system. A compressor or a regulated SCBA bottle may be used. See **LION Optional Accessories** on page 6 for recommended equipment.

## 10. PROP SET-UP INSTRUCTIONS

The I.T.S. Xtreme™ can be fitted with props for additional training situations. Additional props include a Trash Can, Stove Top, Motor and Paint Locker. All props fit onto the I.T.S. Xtreme easily using the prop adapter plate.

### SET-UP FOR PROP OPERATION

1. To set up the props begin by following all the set-up steps found on pages 11–17.
2. After the system is **filled with water** and leveled, place the prop adapter plate in the burn pan as seen in *Figure 10* below.
3. The prop adapter plate has three or four holes used for the attachment of the desired prop as seen in *Figures 10* and *11*. *Figure 11* is a close up. There is one hole in each the top right and left corners of the burner opening and two holes below the bottom center of the burner opening.

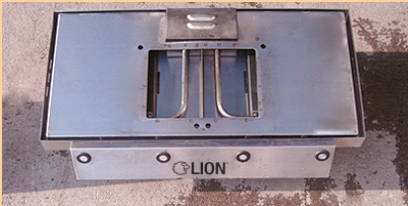


FIGURE 10: PROP ADAPTER PLATE IN I.T.S. XTREME

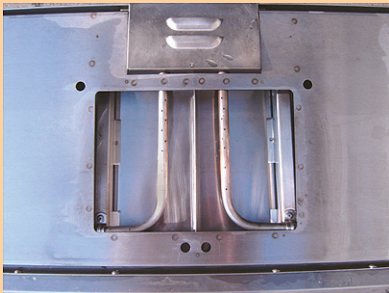
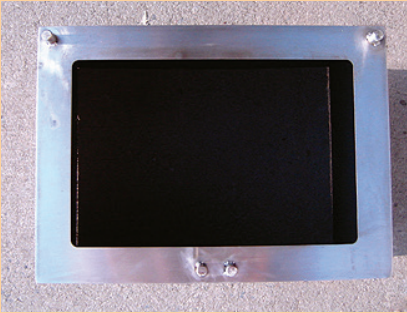


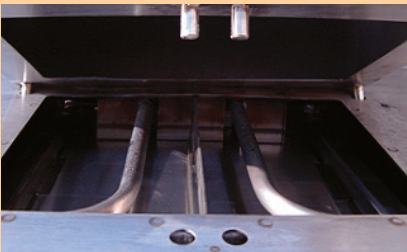
FIGURE 11: CLOSE UP OF MOUNT POSITIONS

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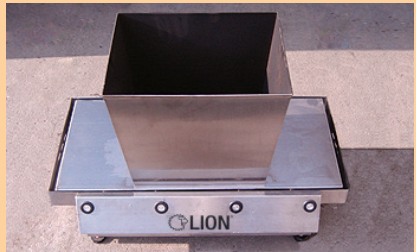
4. All three props have pegs in the same positions on the bottom of the prop. See *Figure 12*. The different positions of the pegs insure the props can not be installed backwards.
5. Install the back pegs into the rear holes of the prop adapter plate as seen in *Figure 13*. Then place the front pegs into the prop adapter plate to finish the prop set-up.
6. The Trash Can is correctly set up in *Figure 14*.



*FIGURE 12: BOTTOM OF TRASH CAN WITH MOUNTING PEGS*



*FIGURE 13: REAR PEGS IN PLACE*



*FIGURE 14: CORRECTLY MOUNTED TRASH CAN PROP*

## 11. PREPARING THE SMARTEXTINGUISHER®

The SmartExtinguisher must be charged with air prior to each training evolution with I.T.S. Currently, there are two types of SmartExtinguishers – the 5X or 7X stainless steel rechargeable extinguishers. The number corresponds to the amount of discharges one can get from a SmartExtinguisher before having to refill it with water.

When you are done using your SmartExtinguisher, LION recommends that you wipe the head stock off, as hard water deposits or some rust may accumulate. This rust does not affect functionality or performance, only appearance.



### GENERAL EXTINGUISHER USAGE

1. Remove the extinguisher's headstock.
2. Fill extinguisher with water.
3. Replace the extinguisher's headstock; the valve nut only needs to be hand tight.
4. Charge extinguisher with compressed air source to 100 PSI (6.9 bar).  
*(Described on page 21–22.)*
5. Discharge extinguisher on I.T.S.' flame during a training evolution.
6. Recharge extinguisher with air to 100 PSI (6.9 bar).
7. Discharge extinguisher on I.T.S.' flame during a training evolution.
8. Recharge extinguisher with air to 100 PSI (6.9 bar).
9. Discharge extinguisher on I.T.S.' flame during a training evolution.
10. Refill with water as necessary.

CONTINUES ➔

## **THE COMPRESSED AIR RECHARGE IS REQUIRED AFTER EACH EXTINGUISHER DISCHARGE**

Water recharges are required every 4–5 extinguisher discharges for the 5X SmartExtinguisher®, and every 6–7 extinguisher discharges for the 7X SmartExtinguisher.

### **WATER RECHARGE FOR THE 5X STAINLESS STEEL SMARTEXTINGUISHER**

1. Unscrew the headstock from the SmartExtinguisher.
2. Fill the SmartExtinguisher to 4 Liters using the 1L measuring cup.
3. Screw the headstock back into the extinguisher cylinder until the O-ring is compressed.
4. Replace the extinguisher pin.
5. Discharge Time: 10–11 seconds

### **WATER RECHARGE FOR THE 7X STAINLESS STEEL SMARTEXTINGUISHER**

1. Unscrew the headstock from the SmartExtinguisher.
2. Fill the SmartExtinguisher to 6 Liters using the 1L measuring cup.
3. Screw the headstock back into the extinguisher cylinder until the O-ring is compressed.
4. Replace the extinguisher pin.
5. Discharge Time: 13–14 seconds

### **COMPRESSED AIR RECHARGE**

Once the water recharge procedure is completed, the SmartExtinguisher must be charged with compressed air. A compressed air source with a standard Schrader valve air-chuck, regulated between 100 PSI (6.9 bar) and 110 PSI (7.6 bar) is required to recharge the SmartExtinguisher. The compressed air charge is the same for each SmartExtinguisher.

## ⚠ DANGER

Do NOT over charge the SmartExtinguisher®.  
Over charging the SmartExtinguisher may cause explosion.

### COMPRESSED AIR RECHARGE INSTRUCTIONS (BOOSTING)

1. Locate the Schrader valve (a Schrader valve is what is used on an automobile tire for filling) on the SmartExtinguisher headstock.
2. Depress the Schrader valve on the SmartExtinguisher with the standard Schrader valve air-chuck that is included. (Ensure that the compressed air source DOES NOT EXCEED 110 PSI (7.6 bar).
3. The air can be heard entering the SmartExtinguisher as it disburse through the water. Continue to fill the extinguisher until the noise stops and the pin of the gauge is in the middle of the green (see *Figure 17* below).
  - The gauge in *Figure 15* shows a SmartExtinguisher that is empty.
  - The gauge in *Figure 16* shows a SmartExtinguisher that is under-pressurized and is not ready to be used with your I.T.S. Xtreme™ unit.
  - The gauge in *Figure 17* shows a pressurized SmartExtinguisher, which is ready for use.



FIGURE 15: UNCHARGED



FIGURE 16: UNDER CHARGED



FIGURE 17:  
CORRECTLY CHARGED



## 12. USING THE INTELLIGENT TRAINING SYSTEM™

### IMPORTANT!

The burner flames and pilot can be shut down instantly at any time by releasing the ignition switch.

### WARNING

Always keep your face and body as far away from I.T.S. as possible when lighting. The I.T.S. system reduces risk for flashbacks but does not entirely eliminate this risk.

### IMPORTANT!

When turning the gas supply valve on, be sure to turn the knob very SLOWLY until it is completely open.

### 12.1 UNLOCKING THE CONTROLLER

1. Make sure that none of the push buttons on the Handheld Controller are depressed.
2. Make sure the gas supply valve located on top of your propane tank is open.
3. When I.T.S. is powered up, the Handheld Controller will display, “Enter start-up code.”
4. **IMPORTANT!** To use I.T.S. one must first enter a button sequence that ensures the operator has read the User’s Manual.
  1. Enter the following button sequence:
    1. Move selector knob to “FULL”
    2. Press and release the FLARE UP switch
    3. Move the selector knob to “A”
    4. Press and release the FLARE UP switch
  2. This will activate the system and the Handheld Controller will display, “Level 2 EStop”
5. I.T.S. is now ready for use.



FIGURE 18:  
I.T.S. CONTROLLER

If the screen displays “Read the Manual before use” you must cycle the power by unplugging and plugging in the yellow power cable.

## 12.2 SELECTING PROP MODE OR STANDARD MODE

After entering the sequence, the controller will ask the user to select “Standard mode” or “Prop mode.”

- If the trainer is not using available props then turn the selector switch to “A” for “Standard mode” and press the **FLARE UP** button.
- Press **FLARE UP** button again to dismiss prop warning (*Figure 20*).
- If the trainer is using available props then turn the selector switch to “B” for “Prop mode” and press the **FLARE UP** button. **Continue to page 29 for Prop information.**



FIGURE 19: STANDARD MODE AND PROP MODE

### **⚠ CAUTION**

DO NOT attempt to use “Standard mode” with any of props installed. Each time “Standard mode” is selected, the screen will display the reminder message (*Figure 20*). Press the **FLARE UP** button to continue.



FIGURE 20: STANDARD MODE REMINDER

## 12.3 SELECTING THE DIFFICULTY LEVEL AND CLASS (STANDARD MODE)

### SETTING THE DIFFICULTY LEVEL

1. To select a difficulty level, ensure that the **IGNITION** button is NOT depressed, then press and hold the **FLARE UP** button. (If the **IGNITION** button is depressed and the **FLARE UP** button is pressed, this will immediately light the burners.)
2. After holding down only the **FLARE UP** button for two seconds, the Handheld Controller will display “Difficulty Set: Level X” (where X is the difficulty level). See *Figure 21*.
3. While continuing to hold the **FLARE UP** button down, use the selector knob to select a difficulty level. The levels are displayed in red next to the class (1 [easiest] – 4 [hardest]).
4. To set the difficulty level, release the **FLARE UP** button.
5. The selected difficulty level will be displayed on the top line of the Handheld Controller display.



FIGURE 21: SETTING THE DIFFICULTY

### CHANGING THE CLASS OF FIRE SIMULATION

The Intelligent Training System™ can simulate the way class A, B and C fires respond to a live fire extinguisher. For example, Class A fires respond by gradually extinguishing with the proper application of a dry-chemical extinguisher, while Class B fires are easily “knocked down” by a single sweep, but are quick to “flare up” if enough extinguishant is not discharged. I.T.S. has the ability to simulate these differing responses.

1. Use the selector switch to select the class of fire to simulate. The selector switch may only be switched between training evolutions. The selector switch may NOT be switched during a simulation. In order to change the mode the controller must say: “Level 1 (or 2, 3, 4) EStop.”
2. Switch to “A” for Class A “Common Combustibles” fires.
3. Switch to “B” for Class B “Flammable Liquids” fires.

4. Switch to “C” for Class C “Electrical” fires.
5. The Class will be displayed on the top line of the Handheld Controller. When the selector switch is set to “FULL,” and a training evolution is conducted, the sensors are disabled. I.T.S. will not respond to the SmartExtinguisher’s signal and the flames will remain at full until the evolution is stopped. “Sensors Disabled” will be displayed on the top line of the Handheld controller screen.

### NOTE

The instructor determines a suitable mode and level for the trainee.

## 12.4 LIGHTING THE PILOT (STANDARD MODE)

### NOTE

Before attempting to start up system, move away from the system.

1. When the level and class of fire have been selected and the controller’s screen looks similar to *Figure 22*, the system is ready to be lit.
2. To light the system, **press and hold** the **IGNITION** button on the Handheld Controller.
3. The system will beep when I.T.S. begins to light the pilot.
  - a. You will also hear clicking, which is the electronic ignition attempting to light the pilot.

If the pilot does not light in 30 seconds, release the **IGNITION** button and wait 1–2 minutes before trying again.

When first lighting the pilot, the propane hose is filled with air which must be “purged” by the propane. It can take up to one (1) minute to light the pilot the first time during a training session.

If the pilot does not successfully light, contact your distributor or LION for assistance.

4. Once the pilot has been successfully lit the system will beep again and light the burners.



FIGURE 22: READY TO LIGHT THE SYSTEM

CONTINUES ➤

- Continue to hold the **IGNITION** button. The system will beep three times in quick succession and start the timer on the Handheld Controller.
- Discharge the SmartExtinguisher® any time after the three quick beeps.

The **IGNITION** Button is an Emergency Stop Button (“Deadman Switch”) and must be held down the entire time the system is running. Letting go of that button trips the emergency stop and prevents propane from entering the system. Releasing this button will disengage the pilot and stop all gas flow.

## 12.5 USING THE FLARE UP BUTTON (STANDARD MODE)

- At any point during a training evolution the **FLARE UP** button can be pressed to immediately relight the burners.
- The burners will return to their full flame and the controller will display Flare Up! as seen in *Figure 23*.
- The **FLARE UP** button can also be pressed up to three (3) seconds after the flames have been extinguished and it will relight the burners and continue the timer. The timer will continue uninterrupted as if the flames were never extinguished. The screen will display Flare Up! as well.



FIGURE 23: FLARE UP!

The **FLARE UP** button can be used to change the difficulty at the trainer's discretion. If one trainee extinguishes the flame too quickly it can be relit using the **FLARE UP** button and they must continue fighting the fire.

## 12.6 EXTINGUISHER TRAINING WITH I.T.S.

### TRAINING EVOLUTION PREPARATION

- Ensure the desired difficulty level and class are selected.
- Ensure that the SmartExtinguisher is properly charged.
- Ensure that no unnecessary personnel/animals/items are in the vicinity of I.T.S.
- Ensure that the trainee is prepared to “extinguish” the fire.

## CONDUCTING THE TRAINING EVOLUTION

1. Press and Hold the **IGNITION** button to light the burners.
  1. You will hear a set of beeps, one short beep when the button is pressed, another long beep when the pilot lights and the system recognizes the pilot, and three short beeps when the timer starts and the trainee should begin to extinguish the fire.
2. When you hear the three short beeps and the Handheld Controller displays a timer, approach the 8 ft. (2.4 m) mark with the trainee.
3. The trainee should then **Pull** the extinguisher pin, **Aim** at the base of the fire (**NOT** the sensors), **Squeeze** the handle, and **Sweep** the extinguisher.
4. **Remain behind the 8 ft. (2.4 m) mark at all times during every training evolution.**
5. If the trainee properly aims and sweeps the SmartExtinguisher® the flames will eventually go out and the time it took to extinguish the flame will be displayed.
  1. The Handheld Controller will read “Ext. in XX.X sec Release Ignition”.
6. If the trainee does not aim and sweep properly the flames will not fully extinguish.
7. If desired, the **FLARE UP** button can be pressed up to 3 seconds after the flame has been extinguished to relight the burners and continue the training evolution. The timer will continue as if the flames were burning for those 3 seconds.

### NOTES

If the trainee does not aim and sweep properly, and the burners are still lit after the SmartExtinguisher is completely discharged, the burners can be shut down by releasing the IGNITION switch.

If I.T.S.' burners run at full for more than 30 seconds, it will automatically shut off the burner flames, ending the training evolution. Once I.T.S. has automatically shut down, the system may be restarted by following the previously stated “Conducting the Training Evolution” instructions.

### IMPORTANT!

THE BURNER FLAMES AND PILOT CAN BE SHUT DOWN INSTANTLY AT ANY TIME BY RELEASING THE IGNITION SWITCH.

## GENERAL TRAINING EVOLUTION PROCEDURE

1. If the trainee does not successfully “extinguish” the flames, the system may be shut down by releasing the **IGNITION** button.
2. Charge SmartExtinguisher® appropriately. (Water and/or compressed air recharge between each discharge.)
3. Ensure conditions are safe for I.T.S. ignition.
4. Change the Difficulty and Class of Fire Settings if necessary.
5. Prepare the trainee to “extinguish” the fire.
6. Press and hold **IGNITION** to light the burners.
7. When the Handheld Controller reads “Time XX.X Sec System Running” and the timer starts, the trainee may begin to discharge the SmartExtinguisher.
8. The flames will automatically shut off if the trainee utilizes the SmartExtinguisher appropriately.
9. Recharge the SmartExtinguisher and begin the next evolution.

### 12.7 SELECTING THE DIFFICULTY LEVEL AND CLASS (PROP MODE)

#### SETTING THE DIFFICULTY LEVEL

1. To select a difficulty level, ensure that the **IGNITION** button is NOT depressed then press and hold the **FLARE UP** button. (If the **IGNITION** button is depressed and the **FLARE UP** button is pressed, this will immediately light the burners.)
2. After holding down only the **FLARE UP** button for two seconds the Handheld Controller will display “Difficulty Set: Level X” (where X is the difficulty level). See *Figure 24*.
3. While continuing to hold the **FLARE UP** button down, use the selector knob to select a difficulty level. The levels are displayed in red next to the class (1 [easiest] – 4 [hardest]).
4. To set the difficulty level, release the **FLARE UP** button.
5. The selected difficulty level will be displayed on the top line of the Handheld Controller display.



FIGURE 24: SETTING THE DIFFICULTY

## CHANGING THE FIRE RESPONSE FOR DIFFERENT PROPS

The I.T.S. Xtreme™ can use props to simulate a trash can fire, stove top fire, motor fire or paint locker fire. The type of prop used is selected the same way in which the class of the fire is selected in “Standard mode.”

1. Use the selector switch to select which prop is currently being used.
  - a. The selector switch may only be switched between training evolutions.
  - b. The selector switch may NOT be switched during a simulation.
  - c. In order to change the prop the bottom line of controller must say: “Ready to Start”
2. Switch to “A” for the Trash Can prop.
3. Switch to “B” for the Stove Top or Paint Locker props.
4. Switch to “C” for Motor prop.
5. The prop will be displayed on the top line of the Handheld Controller. See *Figure 25*.

### NOTE

The instructor determines a suitable mode and level for the trainee.

### CAUTION

“FULL” is not utilized when in “Prop mode.” If the selector switch is pointing to “FULL”, the system will not function. Instead the system will beep and the controller will display “Release Ignition.”

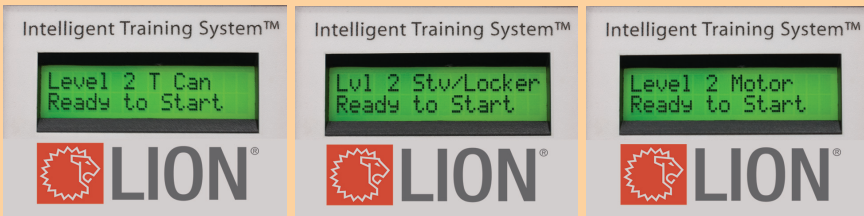


FIGURE 25: PROP MODES



## 12.8 LIGHTING THE PILOT (PROP MODE)

### NOTE

Before attempting to start up system, move away from the system.

1. When the level and class of fire have been selected and the controller's screen looks similar to *Figure 26*, the system is ready to be lit.
2. To light the system, **press and hold** the **IGNITION** button on the Handheld Controller.
3. The system will beep when I.T.S. Xtreme™ begins to light the pilot.
  - a. You will also hear clicking, which is the electronic ignition attempting to light the pilot.

If the pilot does not light in 30 seconds, release the **IGNITION** button and wait 1–2 minutes before trying again.

When first lighting the pilot, the propane hose is filled with air which must be “purged” by the propane. It can take up to one (1) minute to light the pilot the first time during a training session.

4. Once the pilot has been successfully lit the system will beep again and light the burners and prop.
5. Continue to hold the **IGNITION** button. The system will beep three times in quick succession and start the timer on the Handheld Controller.
6. Discharge the SmartExtinguisher® any time after the three quick beeps.



FIGURE 26: READY TO LIGHT THE SYSTEM

### NOTE

If the pilot does not successfully light, contact your distributor or LION for assistance.

The **IGNITION** Button is an Emergency Stop Button (“Deadman Switch”) and must be held down the entire time the system is running. Letting go of that button trips the emergency stop and prevents propane from entering the system. Releasing this button will disengage the pilot and stop all gas flow.

## 12.9 USING THE FLARE UP BUTTON (PROP MODE)

1. If the **FLARE UP** button is pressed during a training evolution in prop mode, the I.T.S. Xtreme™ enters “Evacuate Mode!” See *Figure 27*.
2. The flames will then simulate a level that is unsafe to fight with an extinguisher, beyond the incipient stage.
3. This mode is meant to show students a fire in which it is better to evacuate the area than attempt to put the fire out with an extinguisher.
4. Discharging an extinguisher during evacuate mode will cause the system to immediately stop the evolution.

### CAUTION

Attempting to discharge an extinguisher at I.T.S. Xtreme while in “Evacuate Mode” will turn the flames off immediately, the display will change to *Figure 28* below, and the system will beep continuously for 3 seconds.

The alarm will reset itself after 3 seconds and training can continue.



FIGURE 27: EVACUATE MODE!



FIGURE 28: EVACUATE WARNING

## 12.10 EXTINGUISHER TRAINING WITH I.T.S. XTREME™ (PROP MODE)

### TRAINING EVOLUTION PREPARATION

1. Ensure the desired difficulty level and prop mode are selected for the prop being used.
2. Ensure that the SmartExtinguisher® is properly charged.
3. Ensure that no unnecessary personnel/animals/items are in the vicinity of I.T.S. Xtreme.
4. Ensure that the trainee is prepared to “extinguish” the fire.

### CONDUCTING THE TRAINING EVOLUTION

5. Press and Hold the **IGNITION** button to light the burners inside the prop.
  - a. You will hear three sets of beeps, one short beep when the button is pressed, another long beep when the pilot lights and the system recognizes the pilot, and three short beeps when the timer starts and the trainee should begin to extinguish the fire.
6. When you hear the three short beeps and the Handheld Controller displays a timer, approach the 8 ft. (2.4 m) mark with the trainee.
7. The trainee should then **P**ull the extinguisher pin, **A**im at the prop (**NOT** the sensors), **S**queeze the handle, and **S**weep the extinguisher.
  - a. To extinguish the Trash Can prop, aim into the trash can from 8 ft. (2.4 m) away.
  - b. To extinguish the Stove Top, aim into the pot and at the burner.
  - c. To extinguish the Motor, aim all over the motor.
8. Remain behind the 8 ft. (2.4 m) mark at all times during every training evolution.
9. If the trainee properly aims and sweeps the SmartExtinguisher the flames will eventually go out and the time it took to extinguish the flame will be displayed.
  - a. The Handheld Controller will read “Ext. in XX.X sec Release Ignition”.
10. If the trainee does not aim and sweep properly the flames will not fully extinguish.

**NOTE**

If the trainee does not aim and sweep properly, and the burners are still lit after the SmartExtinguisher® is completely discharged, the burners can be shut down by releasing the “E-STOP” switch.

**NOTE**

If I.T.S. Xtreme’s burners run at full for more than 30 seconds, it will automatically shut off the burner flames, ending the training evolution. Once I.T.S. Xtreme™ has automatically shut down, the system may be restarted by following the previously stated “Conducting the Training Evolution” instructions.

**IMPORTANT! THE BURNER FLAMES AND PILOT CAN BE SHUT DOWN INSTANTLY AT ANY TIME BY RELEASING THE IGNITION SWITCH.**

**GENERAL TRAINING EVOLUTION PROCEDURE**

11. If the trainee does not successfully “extinguish” the flames, the system may be shut down by releasing the **IGNITION** button.
12. Charge SmartExtinguisher appropriately. (Water and/or compressed air recharge between each discharge.)
13. Ensure conditions are safe for I.T.S. Xtreme ignition.
14. Change the Difficulty and Class of Fire Settings if necessary.
15. Prepare the trainee to “extinguish” the fire.
16. Press and hold **IGNITION** to light the burners.
17. When the Handheld Controller reads “Time XX.X Sec System Running” and the timer starts, the trainee may begin to discharge the SmartExtinguisher.
18. The flames will automatically shut off if the trainee utilizes the SmartExtinguisher appropriately.
19. Recharge the SmartExtinguisher and begin the next evolution.

## 12.11 SAFETY FEATURES

I.T.S. has many built-in safety features. It is important that the operator be familiar with all safety procedures and precautions.

### EMERGENCY STOP/DEADMAN SWITCH

- The IGNITION switch acts as a deadman switch for the propane gas supply to I.T.S. The IGNITION switch must be depressed for any gas to flow to the pilot or burners. If at any time the IGNITION switch is released, the propane will automatically be shut off to the pilot or burners. In case of an emergency or unsafe situation, release the IGNITION switch to shut down the unit.

### TILT SENSOR

- I.T.S. is equipped with a sensor that can determine if it has been leveled properly during set-up. If I.T.S. is not leveled correctly the tilt sensor will not allow the system to start up.
- The Handheld Controller will read “Error 211 Tilt!”.
- To reset this alarm during set up, disconnect all cables and hoses from I.T.S. and properly level the base unit. Follow the procedure in “Preparation Instructions” to restart the system.
- The tilt sensor will also alarm if the unit is knocked or bumped.
- The Handheld Controller will read “Error 211 Tilt!”.
- To reset this alarm after being bumped, release the IGNITION switch and ensure that the person or object that struck I.T.S. is safe. Inspect I.T.S. for any damage that may have been caused by the collision. If damage is found, do not use I.T.S. and contact LION for further support. If no damage is found, ensure the system is set up correctly for continued use and attempt to re-ignite the pilot per the “Lighting the Pilot” section.

### CAUTION

Use of LION Props with I.T.S. Xtreme™ requires proper settings be used on the Handheld Controller.

Do not attempt to use LION Props with “Standard mode”, “FULL mode”, or “evacuate mode” settings.

Do not attempt to use I.T.S. Xtreme without LION Props when set to “prop mode.”

## 13. SHUT-DOWN OPERATION

1. To shut down the Intelligent Training System™ release the **IGNITION** button.
2. Turn off the propane tank gas supply valve located on top of the 20 lb. (9.1 kg) propane tank by turning the knob clockwise until snug.
3. Loosen the drain cock underneath the burn pan and drain the water from I.T.S.
4. Unplug the yellow power cable from the 12V power supply.
5. Unscrew the power cable from the rear of the I.T.S. base unit.
6. Unplug the Handheld Controller cable from the controller.
7. Unplug the Handheld Controller cable from the rear of the I.T.S. base unit.
8. Release the propane hose quick disconnect from the rear of the I.T.S. base unit.
9. Unscrew the propane hose/regulator assembly from the propane tank.
10. **IMPORTANT! WHEN OPERATING, SURFACES OF I.T.S. REACH EXTREMELY HIGH TEMPERATURES. Wait until I.T.S. is completely cooled before touching any surfaces. The operator should wait a minimum of 15 minutes before handling. When the water has drained out of burn pan (STEP 3), the system will be cool.**

**Only when I.T.S. has completely cooled for at least 15 minutes:**

11. Wipe down any soot-covered areas with a cloth and water.
  1. Be sure to clean the burners and remove any deposits, especially around the burner holes.
12. Replace the sensor guard by holding it in position and pressing the top of the guard above the LION LOGO, the guard will snap into place. See *Figure 29*.



FIGURE 29

13. Place I.T.S. in a secure and safe place for transportation.
14. Before storage, the Intelligent Training System™ should be completely dry to prevent damage.

 **DANGER**

Wear protective gloves at all times when handling optional LION Props.  
The surface of LION Props can reach temperatures approaching 1,600°F (871°C). Thoroughly cool I.T.S. Xtreme™ with water before handling.

 **CAUTION**

Anyone in proximity to the Intelligent Training System should be alerted to the hazards of high surface temperatures and should stay away to avoid burns or clothing ignition.

People or animals should not be in the area of the appliance without strict supervision.

Storage of an appliance indoors is permissible only if the tank is disconnected and removed from the appliance.

Propane tanks must be stored outdoors in a well-ventilated area and out of reach of children. Disconnected tanks must have threaded valve plugs tightly installed and must not be stored in a building, garage or any other enclosed area.

## 14. SYSTEM TRANSPORTATION

After performing the steps in the **Shut Down Operation**, the system is ready to be transported. When transporting the system there are a few procedures that should be followed.

1. When transporting I.T.S., the self-leveling feet should be screwed in as much as possible. If they are left extended they could be bent upon dropping or severe contact with another object.
2. Ensure that the sensor guard is in place.
3. Do not transport I.T.S. by grabbing or picking it up by any other means except the handle. Picking it up any other way could damage the system and void the warranty.
4. When transporting SmartExtinguishers, one **MUST** de-pressurize them. It may be illegal to transport any kind of pressurized cylinder. LION recommends that when transporting the SmartExtinguishers, one removes the headstock to ensure they are de-pressurized and properly pack them into the accessories carrying case.
5. Empty water from SmartExtinguishers and dry before transporting.
6. When using an I.T.S. transport case the unit should be completely wiped down or allowed to dry before it is stored in the transport case. The transport case holds moisture that can evaporate and recondense on the controller which could damage the LCD screen or other components.

### NOTE

The I.T.S. transport case is near water tight and the I.T.S. should be dried before transportation to help prevent damage to the controller or case foam. If this is not possible, leave the case open for a few hours after arriving at your destination to allow the system to air dry. This is especially important before long periods of storage.

**Do NOT place anything on top of I.T.S. during storage or transportation.**



## 15. MAINTENANCE INSTRUCTIONS

### 15.1 GENERAL MAINTENANCE

- Surfaces of the appliance may be cleaned with a general household cleaner/degreaser. Only clean I.T.S. when it is not in use or plugged in.
- Do not use petroleum-based cleaners to clean any components of the appliance.
- It is recommended that the burners and burn pan be cleaned after each use. The burners and burn pan may be wiped clean with a cloth and water.
- Inspect the burner before each use of the appliance.
- If it is evident that the burners are damaged, the burners must be replaced prior to the appliance being put into operation. Examples of damage to the burner include but are not limited to rust, pits, cracks, ruptures or tears. The replacement burners shall be specified by the manufacturer.
- Ensure that there is no build up of soot or other deposit on any burner holes before each use.
- Inspect the SmartExtinguisher® before each use. If there are any signs of damage or rust on the cylinder body, do not use the SmartExtinguisher and contact LION for further support. Occasionally some rust might build on the threads of the cylinder. The user must wipe down/scrub the threads with a rust removing agent and/or a mild abrasive pad.

<b>DO NOT USE LUBRICANTS ON ANY PARTS OF THE SYSTEM.</b>
--

- Remove any debris and combustible materials from the burn pan. I.T.S. must be kept clear and free from combustible materials, gasoline and other flammable vapors and liquids.
- The supply hose assembly should be visually inspected prior to each use of the appliance. If it is evident there is excessive abrasion or wear or the hose is cut, it must be replaced prior to putting the appliance into operation. The replacement hose assembly shall be specified by the manufacturer. See **Parts List** on page 5.

- It is recommended that the SmartExtinguisher® be dried inside and out after completing a training session.
- The siphon tube on the SmartExtinguisher gradually forms a coating on its surface due to hard water deposits. The siphon tube should be wiped down and cleaned after use. Cleaning can be done with a mild abrasive pad or just a general household cleaning agent and a cloth.

## 15.2 PERIODIC MAINTENANCE

Periodically check the pilot assembly and pilot flames:

- The housing should not be damaged in any way.
- The pilot should produce two equal size flames.
- If the pilot changes size or shape or does not light consistently contact LION for further support.
- Have the SmartExtinguisher(s) hydro-tested by a qualified Fire Equipment Dealer every year.
- I.T.S. should be inspected at least annually by a qualified service agency trained in the function of propane gas controls and equipment.
- It may be necessary to change flame sensors from time to time.

## 16. DIAGNOSTIC TESTS

The Intelligent Training System™ is equipped with three different diagnostic tests that can assist in the troubleshooting/maintenance of the system. There is a tilt sensor test, transducer test, and flame sensor test.

### TO ENTER DIAGNOSTIC MODE

Hold down the **FLARE UP** button while at the same time plugging the system into a power source (battery pack/12V car adapter).

### ONCE IN DIAGNOSTIC MODE

Turn the selector switch to choose desired test, then press the **FLARE UP** button to select it.

- A:** Tilt Sensor Test
- B:** Tilt Sensor Test
- C:** Transducer Test
- Full:** Flame Sensor Test



FIGURE 30



FIGURE 31

## 16.1 TILT SENSOR TEST

The Intelligent Training System™ has a tilt sensor that it uses to determine if the system is level. I.T.S. should always be set up on a level surface or I.T.S.' adjustable feet should be used to level the system. If that is not possible, training should not be conducted. If the water cut-outs do not provide enough information when leveling, the tilt sensor test can be used to determine if the system is level.

1. Press the **FLARE UP** button on the hand held controller when “Tilt Test” is selected. See *Figure 31*.
2. Release the **FLARE UP** button and the screen will display “Calibrating Please Wait.” See *Figure 32*.
3. After a few seconds the screen will display the “FB Tilt” and “LR Tilt.” These values are a leveling assistance. 16400 is perfectly level, however anywhere between 15900 and 16900 is acceptable. Press the **FLARE UP** button to continue. See *Figure 33*. Value may change with software revision. Contact LION with questions.



FIGURE 32



FIGURE 33

## 16.2 TRANSDUCER TEST

The transducers are an important yet delicate part of I.T.S. With proper care they will last a long time. However, scratches and dents will damage them and require replacement. In order to tell if they need to be replaced a transducer diagnostic test can be performed.

### STEPS

1. Ensure that a SmartExtinguisher® is filled with air and water.
2. Press the **FLARE UP** button on the hand held controller when “Sensor Test” is selected. (In Choose Mode, see *Figure 30*.)
3. The controller will ask you to “Stand 8 ft (2.4 m) back and aim at left sensors.”
4. After a few moments the screen will read “Press to begin, Aim at Sensors.” To begin the diagnostics, press the **FLARE UP** button. See *Figure 34*.



FIGURE 34



FIGURE 35



FIGURE 36

5. The screen will read “Discharge Ext at the Left Sensors.” One will have approximately 5 seconds to discharge the SmartExtinguisher® at both ultrasonic transducers on the left side of the unit. The user should discharge the extinguisher from 8 ft. (2.4 m) away as if operating a normal training evolution. See *Figure 35*.
6. Next, the screen will read “OK Recharge with WATER and AIR.” Make sure the extinguisher has enough water to discharge a second time and boost the extinguisher back to 100 PSI (6.9 bar). See *Figure 36*. Press the **FLARE UP** button to continue.
7. The System will then read “Press to begin Aim at Sensors” where the user will press the **FLARE UP** button when ready to begin. See *Figure 34* again.
8. From there the user will have 5 seconds to aim at the right two ultrasonic transducers and discharge the extinguisher.
9. Afterwards, the screen will read “OK: Values less than 120 replace” and after a few seconds will go to the value read-out screen. See *Figure 37*.
10. The value read-out screen displays the receiving strength of each transducer. In our example above, all are reading zero meaning they are all broken. However, any value below 120 is unacceptable and must be replaced. To replace transducers please contact LION for a replacement kit and instructions. See *Figure 38*.



FIGURE 37



FIGURE 38

### 16.3 FLAME SENSOR AND SYSTEM VOLTAGE TEST

The Intelligent Training System™ has a flame sensor that it uses to determine if the pilot is lit. If you believe the flame sensor is not responding or that the voltage to the system is low, this test can be performed.

1. Press the **FLARE UP** button on the hand held controller when “Flame Sensor” is selected. See *Figure 30*.
2. Release the **FLARE UP** button and the screen will display “Hold: Hold to Run Button.” See *Figure 39*. Make sure the line has been purged of air and the pilot will light. If necessary cycle the power, enter the sequence, and press and hold ignition until the line is purged.
3. If you are sure the line is purged, press and hold the **IGNITION** button. After a few seconds of the testing, the screen will look as seen in *Figure 40*. A flame sensor value and voltage reading will be displayed. The flame sensor value in *Figure 40* is a good 2001. Any value above 100 is good. Values between 50 and 100 will work but may cause the system to light slower than normal. Attempt to clean the bulb with a household cleaner. Replace the bulb if the value is below 50 even after cleaning.
4. The voltage displayed in *Figure 40* is also good. Recharge the battery pack if the voltage is below 11.5 Volts. Attempting to run the system when the battery pack is low can damage the battery pack. If a car is being used, do not use that vehicle if the voltage is below 12 volts.



FIGURE 39



FIGURE 40

## 17. TROUBLESHOOTING

### HANDHELD CONTROLLER DISPLAYS “INTELLIGENT TRAINING SYSTEM™ V2”

If you plug in the Handheld Controller after powering up the system the display will read, “Intelligent Training System v2.” After a short time, the screen will display “Unplug yellow cable and plug back in.” Reset the system by unplugging the yellow power cable and plugging it back in.

### THE HANDHELD CONTROLLER DISPLAYS “READ MANUAL BEFORE USE.”

The entry sequence has been entered incorrectly. Cycle the power by unplugging the yellow power cable from the battery pack and plugging it back in. Then see page 23 for assistance entering the sequence. For further problems call LION for assistance.

### THE PILOT IS NOT LIGHTING

- Make sure the propane tank is turned on.
- Make sure the propane hose is firmly connected.
- Check that the pilot is sparking – if not, contact LION.

### THE PILOT IS LIT BUT NOT RECOGNIZING

- Perform a flame sensor test as described on page 45.
- If the sensor reads correctly, try to light the system again. If it does not work, contact LION.
- If the value is between 50 and 100, try to clean the bulb with a household cleaner, and then attempt to use the system again. If that does not work, contact LION.

CONTINUES >



## TILT ALARM

**If the unit is not leveled properly the tilt alarm will activate.**

- The Handheld Controller will read “Error 211 Tilt!”.

To reset this alarm:

- Release the IGNITION switch.
- Disconnect all cables and hoses from I.T.S.
- Level I.T.S. correctly.
- Reconnect all cables and hoses as directed in the I.T.S. **Set-Up Instructions.**
- Attempt to re-ignite the pilot per the “Lighting the Pilot” section.

**If the unit is knocked or bumped into, the tilt alarm will activate**

- The Handheld Controller will read “Error 211 Tilt!”.

To reset this alarm:

- Release the IGNITION switch
- Ensure that the person or object that struck I.T.S. is safe.
- Inspect I.T.S. for any damage that may have been caused by the collision
  - If damage is found, do not use I.T.S.
  - Contact LION for further support.
- If no damage is found, ensure the system is set up correctly for continued use and attempt to re-ignite the pilot per the “Lighting the Pilot” section.

## LOW VOLTAGE ALARM

The low voltage alarm is triggered when the power source used is not or no longer capable of supplying the necessary current to run the I.T.S. When using a battery pack and this alarm occurs DO NOT continue to use the battery pack. Doing so can cause permanent damage to the battery.

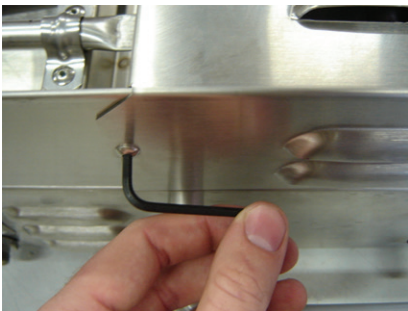


FIGURE 41



FIGURE 42

## 18. REPLACING THE I.T.S. FLAME SENSOR

### PARTS & TOOLS

- (1) Replacement Flame Sensor
  - (1) 1/8" (8 mm) Allen key
1. Begin by removing the two bolts on the back of the pilot housing with the 1/8" (8 mm) Allen key. See *Figure 41*.
  2. Using the same Allen key remove the bolt above the flame sensor. See *Figure 42*.
  3. Gently pull up on the flame sensor and guide the connector out from inside the system. See *Figure 43*.
  4. Lift up on the snap lock (*Figure 44*) and remove the entire old flame sensor assembly.
  5. Snap the new flame sensor assembly into place and guide the connector back into the system.
  6. Replace the bolt holding the flame sensor and housing in place.
  7. Replace both pilot housing bolts.

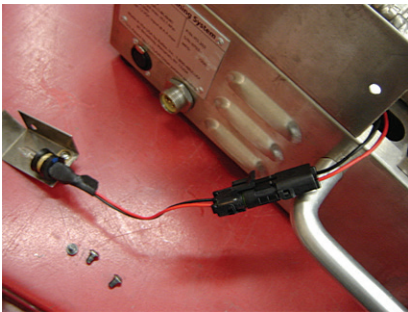


FIGURE 43



FIGURE 44

## 19. WARRANTY INFORMATION

All parts such as stainless steel sheet metal components, gas valves, controls, and hoses are covered and LION will provide replacement parts free of charge during the warranty period. The warranty period shall begin on the ship date and continue for one full year. Labor related to warranty repair is covered free of charge during the warranty period. Repair work, however, requires the prior approval of an authorized company official. Labor costs to the account of LION are based on a predetermined rate schedule and any repair work must be done through an authorized LION dealer. This warranty covers labor and parts related defects. This warranty does not cover neglect, accidents, misuse, or negligence on the operator's part.

### CONDITIONS AND LIMITATIONS

LION warrants its products against manufacturing defects to the original purchaser only – i.e., the individual or legal entity (registered customer) whose name appears on invoice for the I.T.S. system, provided that the purchase was made through LION or an authorized LION dealer and is subject to the following conditions and limitations:

This factory warranty is nontransferable and may not be extended whatsoever by any of our representatives.

Assembly and use must be done in accordance with the instructions included with the product and all local and national fire codes.

This Limited Warranty does not cover any damage caused by misuse, lack of maintenance, hostile environments, accidents, alterations, abuse or neglect. Parts installed by other manufacturers will nullify the warranty.

This Limited Warranty does not cover any scratches, dents, corrosion, or discoloring by heat (all stainless steel will discolor). Abrasive and chemical cleaners will also damage the appliance. In the first year only, this warranty extends to the repair or replacement of warranted parts which are defective in material or workmanship provided that the product has been operated in accordance with the operation instructions and under normal conditions.

After the first year, LION will not be responsible for replacement part expense, installation, labor or any other costs or expenses related to the reinstallation of a replacement part, and such expenses are not covered by this warranty.

Notwithstanding any provisions contained in this Limited Warranty, LION's responsibility under this warranty is defined as above and it shall not in any event extend to any incidental, consequential or indirect damages.

This warranty defines the obligations and liability of LION with respect to the LION gas appliance and any other warranties expressed or implied with respect to this product.

This limited warranty does not cover damages resulting from the use of components not supplied with the appliance, or the use of fuel other than that specified.

Any damages to appliance due to weather, long periods of dampness, condensation, damaging chemicals or cleaners will not be the responsibility of LION.

The bill of sale or copy will be required together with a serial number and a model number when making any warranty claims from LION or authorized dealer.

LION reserves the right to have its representative inspect any product or part thereof prior to honoring any warranty claim.

LION or its representatives shall not be liable for ANY transportation charges, labor charges or duties.

## 20. CONTACT INFORMATION

### LION

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