



LION[®]
ready for action

**MAGNUM
HOSE LINE &
EXTINGUISHER
TRAINING
SYSTEM**

[USER'S MANUAL



 **WARNING**

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage.

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

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

 **WARNING**

For Outdoor Use Only
(Outside any enclosure)

 **DANGER**

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

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SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

1. HOW MAGNUM WORKS

The LION MAGNUM utilizes an industrial grade pilot and infrared flame sensing technology to detect how well the trainee uses their preferred method of extinguishing MAGNUM'S fire. Whether MAGNUM is being used with a dry chemical, foam or CO₂ extinguisher or a hose line, the fire must be properly suppressed and kept out at which point the system will recognize that the fire has been properly extinguished.

The MAGNUM is capable of simulating two types of fires, a propane vapor fire and a liquid surface fire. Burning nearly three million BTU per hour, the MAGNUM can easily simulate large propane or liquid fires.

Infrared fire detection sensors immediately recognize when fire is present and when it has been properly extinguished. To successfully extinguish the fire, the trainee must sweep the extinguisher across the base of the fire. If the trainee aims at the base of the fire and keeps the fire suppressed for five seconds the infrared flame sensor recognizes the fire has been extinguished and turns off the flow of propane. In addition, the MAGNUM is equipped with temperature sensors and a propane gas emergency cut-off switch for user safety.

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 43.5 PSI (3.0 bar) max
Input: 2,992,448 Btu/h	Duty Cycle: 50%
Electrical: 12 VDC Input @ 2 A Max	

FOR YOUR SAFETY

1. This appliance is for outdoor use only. Do not use in a building, garage, or any other enclosed area.
2. Do NOT use this appliance for indoor 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. 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 30 ft. (9.1 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. Wear Personal Protective Equipment (PPE) when training with MAGNUM.



WARNING

15. Always fill this appliance with the proper amount of water specified in the "Set-Up Instructions" before each use.
16. Do NOT wear flammable or loose clothing when operating this appliance.
17. Do NOT use in windy conditions.
18. Do NOT attempt to manually light the pilot.
19. 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.
20. Do NOT attempt to move or store MAGNUM until completely cooled.
21. Do NOT move this appliance when the burn pan contains water.
22. Do NOT lean over this appliance when lighting or when in use.
23. Avoid breathing smoke from the fire and avoid getting it into your eyes.
24. This appliance should be thoroughly inspected and cleaned on a regular basis by trained personnel.
25. CAUTION: The gas pressure regulator provided with this appliance must be used. This regulator assembly is adjustable but should never be set higher than ~43 PSI (3.0 bar).
26. The propane gas supply tanks must be disconnected when this appliance is not in use.
27. Connect only to tanks marked PROPANE or LPG.
28. Do NOT use for cooking food.
29. Do NOT use MAGNUM when the temperature is below 32° Fahrenheit (0° Celsius).
30. Do NOT drop MAGNUM. If you do drop your MAGNUM Unit, inspect thoroughly before use.
31. Death, serious injury or damage to property may occur if the above is not followed exactly.

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 30 ft. (9.1 m) clearance (side) from combustible materials (for example wood, paper, gasoline).
5. Always place MAGNUM on a hard and level surface.
6. Do not use if the wind velocity is greater than 10 miles per hour.
7. Unit will operate at reduced efficiency below 50°F (10°C). Do not use below 32°F (0°C).
8. Keep sprinklers and other water sources away from electronics and controls.
9. Always use extreme caution when near MAGNUM. Trainees extinguishing MAGNUM should be wearing personal protective equipment (PPE).
10. No one should be in the vicinity of MAGNUM unless under strict supervision.
11. Any guard, such as the pilot housing or other protective device, which was removed for servicing must be replaced prior to operating MAGNUM.
12. Do not alter MAGNUM in any manner.
13. The pressure regulator stand and hose assemblies supplied with the appliance must be used and replacements must be those specified by the manufacturer.
14. Inspect MAGNUM 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, **your distributor or LION** for assistance.
16. During operation, do not touch burner assembly. The surface of MAGNUM can reach temperatures approaching 1,600°F (871°C).
17. After shutdown, do not touch burner assembly until MAGNUM 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. MAGNUM must be used with water. Running the system without water or any other liquid will void the warranty and damage MAGNUM.
20. Do not use in an explosive atmosphere. Keep MAGNUM away from areas where flammable liquids, gasoline, vapors, or explosives are stored or used.

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 MAGNUM.

3. MAGNUM SYSTEM SPECIFICATIONS

The MAGNUM is intended to provide safe and cost effective live fire training. MAGNUM should be used outdoors on a non-combustible surface with adequate clearance from any combustible or flammable materials. MAGNUM 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 approximately 43 PSI (3.0 bar). MAGNUM is designed to be supplied by two standard 60 lb. (27.2 kg) propane tanks that can be purchased from LION. However, one can also use 50 lb. (22.7 kg) tanks if desired. Contact your local propane supplier or LION for details. The regulator and supply stand provided with MAGNUM should be attached directly to the propane tanks.

PROPANE STAND	
Dimensions (l x w x h)	29" x 15" x 54" (74 x 38 x 137 cm)
Material	Stainless Steel
Type of Gas Used	Propane Gas, 2 Tanks
Adjustable Reducing Valve	0–43.5 PSI (3.0 bar)

BURN PAN	
Dimensions (l x w x h)	49" x 31" x 23" (124 x 79 x 58 cm)
Depth of Waterbed	6" (15 cm)
Material	Stainless Steel
Maximum Power	2,992,448 btu/h (877 kW)
Length of Gas Hose	20 ft. (6.1 m)
Cable Length for Remote Control	25 ft. (7.6 m)
Electrical	12 VDC at 2 Amp Max Internal Battery

CHARGER	
Input Voltage	120 VAC – 2 Amp
Charging Time Usage Cycle	6–8 hours
Per Charging Cycle	4 Hours Continuous Burn Time

4. FUEL REQUIREMENTS

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

NOTE

Two 60 (27.2 kg) (or 50 [22.7 kg]) lb. propane tanks are required when operating Magnum. Propane tanks can be purchased directly from LION or at an independent dealer.

PROPANE TANK INFORMATION

- Never use a dented or rusted propane tank with a damaged valve.
- 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.

NOTE

Propane tanks should **NOT** be equipped with an O.P.D. (Overfilling Prevention Device). The device limits the flow of propane and will result in significantly smaller flames.

4.1 BEFORE USING YOUR PROPANE TANK

- Inspect tanks for any damage to valve or tank.
- All tanks need to be purged prior to the first time being filled with propane. The purging process removes any small particles that may be present from the manufacture of the tank. Typically tanks must be brought to the fill location to be purged.
- Tanks must be filled with propane prior to use. It is not uncommon for propane fill locations to charge by the tank rather than the gallon/lb for 50/60 lb. (22.7/27.2 kg) tanks. Ask the attendant what fill terms they use.
- It is also not uncommon for attendants to fill 50/60 lb. (22.7/27.2 kg) tanks by loosening the relief valve and filling the tank until liquid propane begins to spurt from the valve. Make sure to confirm which fill process they use and request a different process if you are uncomfortable.

4.2 PROPANE TANK USE

- When turning the propane tank on, make sure to open the valve slowly and completely to insure proper gas flow.
- Tanks used with MAGNUM should not have O.P.D. protection devices. O.P.D. devices limit the flow from the tank and will not allow sufficient propane to operate the system. However, this means that it is possible for large amounts of propane to flow from the tank if the propane hose is not tightened securely into the tank.
- Use the supplied wrench to tighten the propane hose fittings into the tank prior to opening the valve, and then slowly open the tanks listening for any leakage. Use a gas leak test kit to check for any leakage around the valve connection.
- The propane tanks should always be placed upright when supplying propane to MAGNUM so as to draw only propane vapor from the tank.

4.3 REFILLING A PROPANE TANK PURCHASED FROM LION

- 60 lb. (27.2 kg) tanks purchased from LION are equipped with 10% multi-valves. These tanks can be filled with the same connector as a standard 20 lb. (9.1 kg) tank or by using the top “spray fill” connection.
- The “spray fill” connector is more commonly found on trucks that refill propane tanks on site but most fixed fill stations can use both, and all fixed stations should have one or the other.
- If bringing your tanks to a location to be filled, make sure they are transported upright. In addition to safety hazards, propane fill locations will not fill the tanks if they arrive on their sides.
- Do NOT transport the tanks in the same compartment as driver or passengers. Covered truck beds are acceptable, cargo vans are NOT.
- Fill prices may vary. Ask the attendant how the fill will be charged.

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

If at any time the propane tank tips over, immediately release the ignition button (if pressed); press the gas E-Stop valve on the propane assembly stand; straighten the tank, close the valve on the propane tank and wait 5 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 COULD CAUSE A DANGEROUS SITUATION!

5. MAGNUM INTRODUCTION

Pages 10–22 contain the usage instructions for MAGNUM. 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 six times a year.

MAGNUM SET-UP INSTRUCTIONS

This section begins with removing the system from its packaging and explains all the set-up instructions for the MAGNUM unit, including set up, propane supply, and filling the burn pan with water.

MAGNUM USAGE INSTRUCTIONS

This section explains the use of the product, how to light the pilot, examples of how to conduct a training evolution and a list of the MAGNUM safety features.

MAGNUM SHUT-DOWN OPERATIONS

This section details shutting down the MAGNUM system.

6. 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).

NOTE

LION recommends performing the comprehensive leak test, described below at least six times a year.

TESTING PROCEDURE

1. Connect the propane tanks as directed in the "Set-Up" section.
2. Make sure the gas emergency cut-off valve is depressed.
3. Turn the valve of the propane tanks counterclockwise until fully open.
4. Apply the soap solution to connections of the fuel supply assembly up to the ball valves. 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. Connect the burn pan's propane supply line to the stand, disengage the emergency cut-off.
6. Apply the soap solution to all other connections of the propane supply. 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.

7. Turn off the valves on the top of the propane tanks.
8. Disconnect the propane hose from the stand.
9. Wash off hose assembly with water and towel dry.
10. 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.

LEAK TESTING NOTES

7. MAGNUM SET-UP INSTRUCTIONS

SET-UP FOR OPERATION

1. Place the burn pan on as level a surface as possible. MAGNUM does not contain any sensors to determine if the system is level, but the system should be level within 5 degrees.
2. Make sure the drainage ball valve is closed (pointing to the left when looking at the valve) and fill the compartment with water until the overflow. It will take approximately 24 gallons of water to completely fill the burn pan.

NOTE

If the burn pan is not completely filled with water, MAGNUM's temperature sensor will trip the alarm and the system will not be usable until the compartment cools down.

3. Place two 60 (27.2 kg) (or 50 [22.7 kg]) lb. propane tanks on the propane stand. Center the tanks into the indentations in the back of the stand and secure the tanks with the provided straps.
4. Connect the propane hoses to the propane tanks using the wrench provided (on the central support of the propane stand) to tighten down the fittings.
5. Connect the propane hose from the burn pan to the propane stand. The fittings are quick-disconnect connections. Pull the collar of the stand's fitting upwards and press the hose's fitting into place. Release the collar and check to make sure the hose is firmly connected.
6. Check to make sure that the emergency stop button is depressed. It is the red button located on the right-top side of the propane stand. The MAGNUM emergency stop operates differently than most cut-offs. The operator must use the key by sliding it into the bottom of the switch and firmly pressing down on the key.
7. Locate the controller beneath the burn pan and unwrap the cord. The top-left of the propane stand has a location that holds the controller when it is not in use. Place the controller there for use later.

8. Slowly and carefully open each of the propane tanks one by one. Listen for any escaping propane gas. The propane hoses do contain spring loaded piston check valves to stop any reverse flow of gas.
9. Check the gas pressure on the manometer and if necessary, adjust the pressure. The pressure can be turned down to simulate smaller fires.

 **WARNING**

DO NOT EXCEED A PRESSURE OF 43.5 PSI (3.0 bar) WHEN USING THE MAGNUM.
DOING SO COULD CREATE A POTENTIALLY UNSAFE SITUATION.

10. De-activate the emergency cut-off. There is a key attached via chain near the emergency cut-off. Insert the key into one of the 4 openings around the bottom of the cut-off button and press down on the key to allow flow of gas to the burn pan.
11. The MAGNUM is now ready for use.

 **CAUTION**

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

Make sure the quick disconnect plug on the system is solidly secured.

8. USING MAGNUM

WARNING

Always keep your face and body as far away from MAGNUM as possible when lighting. MAGNUM lights very quickly. Stand at least 6 ft. (1.8 m) away when lighting MAGNUM. Never for any reason approach or be near MAGNUM when lighting.

8.1 USING MAGNUM'S CONTROLLER

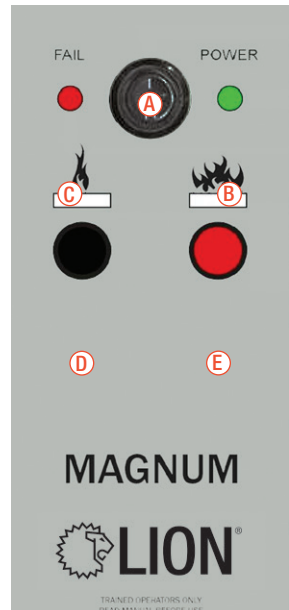
1. Begin by pressing the “I” down on the Power Switch. The green LED should light up indicating the system is ready. The “0” position turns power off. The “I” position is for charging and is not used during training.

IGNITING THE CENTRAL FLAME

1. Press and hold the black “Central Flame Pushbutton” denoted by the image of a central flame on the controller.
2. The controller will emit a long and continuous beep. The pilot will light followed immediately by the central flame.
3. Releasing the button any time after ignition will extinguish the flames.

IGNITING THE SURFACE FLAME

1. Press and hold the red “Surface Flame Pushbutton” denoted by the image of a large flame on the controller.
2. The controller will emit a long and continuous beep. The pilot will light followed immediately by the surface flame.
3. Releasing the button any time after ignition will extinguish the flames.



- (A) POWER SWITCH (B) LED POWER INDICATOR
 (C) LED FAIL INDICATOR (D) CENTRAL FLAME PUSHBUTTON
 (E) SURFACE FLAME PUSHBUTTON

 **WARNING**

If MAGNUM's pilot does not light it is possible for the system to discharge propane for up to 5 seconds while the pilot is attempting to light. During the ignition process, the system attempts to light and checks for flame for 5 seconds with its flame sensor. After 5 seconds without ignition, all propane flow is stopped. If this occurs, see troubleshooting section for assistance with pilot ignition.

SWITCHING BETWEEN CENTRAL FLAME AND SURFACE FLAME

1. You may switch between a Central Flame and a Surface Flame and vice versa. To switch flame types, hold down the button for the first flame type, then while keeping this button pressed, press and hold the second flame type's button. When the fire has changed type, release the first flame type's button. Both buttons will be depressed for a short time.
2. For example; igniting a central flame then changing it to a surface flame.
 - a. Press and hold the "Central Flame Pushbutton."
 - b. After the fire has been running, press the "Surface Flame Pushbutton" while still holding the "Central Flame Pushbutton".
 - c. The MAGNUM will switch to simulating a surface flame.
 - d. Release the "Central Flame Pushbutton" while continuing to hold the "Surface Flame Pushbutton".
 - e. You have then successfully switched to a surface flame.

continues 

CHARGING MAGNUM'S INTERNAL BATTERY

1. If the battery in the unit is almost empty, the remote control unit will emit two brief beep signals every 30 seconds.
2. If plugging in the charger is not an option; it will be possible to continue training for about 20 minutes, depending upon the quality of the battery. The older the battery gets, the shorter this backup period of operation will last.
3. If the battery is almost completely empty, you will have to partially charge the unit before it can be used again.
4. A complete charging cycle takes about 6–8 hours. If the battery is completely empty, you can use the system again after charging it for about 1.5 hours. In that case, continue charging the system after training until the battery has been completely charged.

NOTE

The accompanying charger is not waterproof. The remote control unit is also not waterproof, but it is resistant to incidental water drops etc.

This should be taken into account during extinguishing exercises as well as when cleaning the unit.

5. To charge the battery:
 - Unplug the charger from the standard 120 VAC outlet prior to plugging-in or unplugging the charger to the controller.
 - Connect the charger to the controller by opening the cover and pressing the charger into the bottom of the controller.
 - Plug the charger into a standard 120 VAC outlet.
 - Do not use MAGNUM while charging the battery.
 - Put the power switch in the "I" position for charging.
 - LED lights on the charger are labeled to indicate charging or trickle charging.
 - The battery is full when the charger is trickle charging.

8.2. TRAINING WITH MAGNUM

TRAINING EVOLUTION PREPARATION

1. Properly connect MAGNUM as described on pages 12–13.
2. Ensure that the desired extinguisher/hose line is properly charged/ready.
3. Establish a safe perimeter of at least 30 ft. (9.1 m) and ensure that no unnecessary personnel/animals/items are in the vicinity of MAGNUM.
4. Ensure that the trainee is prepared to “extinguish” the fire.

MAGNUM TRAINING INFORMATION

The combustion compartment is equipped with infrared flame detection, which detects whether a flame is present. After the flame has been extinguished, the unit will try to reignite the fire for a period of 5 seconds. If this attempt is unsuccessful, a long and continuous beep signal will be emitted to indicate that the fire has been extinguished.

If the fire in the compartment has not yet been extinguished after one minute or if the control button is released, then the fire in the compartment will automatically be extinguished and the controller will emit a long and continuous beep signal.

After the fire has been extinguished and the control button has been released, you must wait for at least 8 seconds before starting again. This safety measure is intended to eliminate any explosion hazard due to the accumulation of gas in the burner unit. If you push the control button before 8 seconds have passed, the FAIL indicator on the control panel will briefly blink accompanied by a short beep every second.

NOTE

MAGNUM can be extinguished using water, foam, CO₂ or powder fire extinguishers. However, if powder and/or foam are used, a significant accumulation of debris can build up on the flame detector which may cause the detector to no longer function properly. When using these agents, the sensor window may need to be cleaned with water and/or a sponge more frequently.

When using chemical or foam agents, MAGNUM should also be cleaned very thoroughly after each use so that the life of the product is not shortened.

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CONDUCTING THE TRAINING EVOLUTION WITH AN EXTINGUISHER

1. Press and Hold one of the flame pushbuttons to light the flames.
 - a. The controller will emit a long and continuous beep. The pilot will light followed immediately by flames. The exercise can begin as soon as the flames are burning.
2. The trainee should **P**ull the extinguisher pin, **A**im at the base of the fire, **S**queeze the handle, and **S**weep the extinguisher.
3. If the trainee properly aims and sweeps the extinguisher, knocks the flames out, and keeps the fire suppressed for 5 seconds; the system will shut down the electronic valves and the controller will beep.
4. If the trainee does not aim and sweep properly, the flames will not be fully extinguished.
5. If the trainer thinks the simulation may be too difficult for a particular trainee, the pushbutton can be released at any time to stop the simulation.

NOTE

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

NOTE

The flow of gas can be shut down at any point by pressing the emergency cut-off located on the top-right of the propane stand. To allow gas to flow again, insert the key into one of the four openings around the bottom of the cut-off button and press down on the key.

CONDUCTING THE TRAINING EVOLUTION WITH HOSE LINE

1. LION recommends using no larger than a 2" (5 cm) hose line when training with MAGNUM.
 - a. When using a hose line, follow all NFPA guidelines for live fire evolutions.
 - b. Larger hose lines can be used, but should only be used set to wide or full fog patterns.
 - c. There are a variety of hose sizes, nozzles, and pressures that can be used when operating a hose line. The instructor is responsible for selecting a safe and appropriate combination.
2. Press and Hold one of the flame pushbuttons to light the flames.
 - a. The controller will emit a long and continuous beep. The pilot will light followed immediately by flames. The exercise can begin as soon as the flames are burning.
3. The trainee should then engage the hose line by pulling back on the handle and sweep/suppress MAGNUM's flames. Begin further away from the system (distance should be determined by trainer and environment) and work towards MAGNUM while suppressing the flames.
 - a. LION recommends using a small to medium fog pattern inside 8 ft. (2.4 m).
 - b. Remain at least 4 ft. (1.2 m) back from the unit in full PPE when the hose line is engaged.
 - c. Remain at least 6 ft. (1.8 m) back without any gear when the hose line is engaged.
4. If the trainee properly aims and sweeps the hose line, knocks the flames out, and keeps the fire suppressed for 5 seconds; the system will shut down the electronic valves and the controller will beep.
5. If the trainee does not aim and sweep properly, the flames will not be fully extinguished.
6. If the trainer thinks the simulation may be too difficult for a particular trainee, the pushbutton can be released at any time to stop the simulation.

NOTE

At NO point should a master stream be used on MAGNUM!

8.3. SAFETY FEATURES

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

EMERGENCY CUT-OFF

MAGNUM'S propane stand is equipped with an emergency cut-off that when depressed stops all flow from the tanks to the burn pan. The cut-off is protected with a keyed pushbutton. The key is tethered to the stand by a chain, but could easily be removed and given to a responsible party if desired.

FLAME SENSOR

MAGNUM is equipped with an infrared flame sensor that instantly detects the presence of fire. If at any point the sensor does not see flame for 5 seconds, it shuts all electronic valves down completely.

TEMPERATURE SENSOR

MAGNUM is also equipped with a temperature sensor that monitors the temperature of the flame sensor and other onboard electronics. The temperature sensor will trip long before any damage to MAGNUM or its components could occur.

CHECK VALVES

The propane hoses that connect the tanks to the propane stand have inline check valves to prevent the reverse flow of propane in the event that one tank is not hooked up (or not tightened completely).

9. SHUT-DOWN OPERATION

1. Turn off the propane tanks' gas supply valves located on top of the 60 lb. (27.2 kg) propane tanks by turning the knobs clockwise until snug. Make sure the tanks are off completely.
2. Bleed the remaining propane in the system by pressing the "Central Flame Pushbutton" and holding it until MAGNUM has burned off all excess propane.
3. Turn the drainage valve's handle such that it points downward and drain the water from MAGNUM. It is located underneath the burn pan near the handle.
4. **IMPORTANT! WHEN OPERATING, THE WATER AND METAL SURFACES OF MAGNUM REACH EXTREMELY HIGH TEMPERATURES. Wait until MAGNUM is completely cooled before touching any surfaces. The operator should wait a minimum of 15 minutes before handling.**
5. After the propane has been bled and the burn pan has begun draining, press the emergency cut-off button.
6. Toggle MAGNUM's Power Switch to the "0" setting to turn off the onboard battery.

NOTE

Failure to turn off the power on the controller could drain and permanently damage the battery. This damage includes shortening the battery life or damaging the battery such that it needs to be replaced.

7. Wrap up the controller and cable and place them into the storage area below MAGNUM's burn pan.
8. Pull back on the quick disconnect collar located on the bottom-underside of the stand and disconnect the propane hose. Wrap the propane hose back up and place it in the same storage area as the controller and its cable.
9. Unscrew the propane hose assemblies from the tanks using the provided wrench (on the central support of the propane stand) to loosen the fittings.
10. Loosen the straps and remove the propane tanks from the stand and store them appropriately.

continues 

11. Hose MAGNUM down if using any powder, foam, or chemical extinguishing agent.
12. Place MAGNUM in a secure and safe place for transportation.

 **CAUTION**

Anyone in proximity to MAGNUM 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.

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.

10. MAINTENANCE INSTRUCTIONS

10.1 GENERAL MAINTENANCE

MAGNUM is made mostly of stainless steel, and some parts are made of a copper/brass or aluminum alloy.

The following maintenance activities must be carried out **after every session**:

1. After every training session, clean MAGNUM using water and any non-solvent cleaning agent or a simple soap solution. This will enhance operability and reduce potential faults. Remember to make sure that no water enters the connectors while cleaning the unit. Also make sure that no water enters the gas hose. Do **not** use any type of solvent to clean MAGNUM.
2. Check the ring burner pipe and the central burner in the combustion compartment of the MAGNUM to see whether the outflow nozzles for the propane gas have become clogged due to the use of foam and/or powder based extinguishing agents. Always keep these openings clean and free of any external pollution.
3. After using the MAGNUM with powder or foam, always clean it thoroughly as soon as possible in order to prevent blockage or pollution.
4. Clean the flame sensor window after each use. Remove any soot, debris, powder, or chemical. This will increase the efficiency of MAGNUM and prevent flame sensor failure.
5. Check the gas hose for damage. In case of damage, the gas hose must immediately be replaced!

NOTE

Keeping MAGNUM's flame sensor window clean is essential to the system's functionality. Make sure to clean the window after each use.

10.2 PERIODIC MAINTENANCE

LION recommends that you return MAGNUM to the LION production facility once a year for maintenance. You can do so with or without a service package. For additional information and service package pricing, please contact **your distributor or LION** for assistance.

11. TROUBLESHOOTING

CONTROLLER EMITS 2 BRIEF BEEPS EVERY 30 SECONDS...

MAGNUM's internal battery is getting low, see page 16 for complete charging information.

CENTRAL FLAME LIGHTS, THEN TURNS OFF A FEW SECONDS LATER AND THE FAIL LIGHT FLASHES...

The flame sensor is not recognizing that the system is lit and is cutting propane flow after 5 seconds. Press the emergency cut off button on the propane stand and then attempt to light system once more, purging the propane left in the line. Then cool the pilot housing down with cold water and use a tool or gloves to remove the housing. Simply pull upward on the housing to remove. Use water to cool pilot area as well.

Locate the small circular window inside the pilot area and use a damp rag to clean off excess carbon build up or chemical that has collected on the window. The carbon build-up looks like a black film on the window. The area should also be cleaned thoroughly after training. Replace the housing and use the key to unlock the emergency cut-off. Attempt to start the system again. If problem continues contact LION for assistance.

FAIL LIGHT BLINKS CONTINUOUSLY AND CONTROLLER DOES NOT RESPOND...

MAGNUM's temperature sensor has tripped and the system will not respond until it has cooled down. Turn the Power Switch to the "0" setting and allow the system to cool for 10 minutes, then try to re-ignite the system. Cooling time can be reduced by pouring cold water all over the pilot housing. If problem persists, contact **your distributor or LION** for assistance.

WHEN I TRY TO START THE SYSTEM, THE CONTROLLER BEEPS AND FAIL LIGHT FLASHES...

Attempting to light MAGNUM too soon after it has been extinguished causes this to happen. Wait a little bit longer before trying to relight the system.

MAGNUM IS NOT LIGHTING...NOT GETTING PROPANE...

Check that all propane connections are tight and open:

- Check that tank connections are tight.
- Check that both tanks' valves are open by turning them counter clockwise as far as they will go.
- Check that both of the ball valves after the inlet hoses are open (pointing towards the ground).
- Check that the pressure gauge is working and the reading does not exceed 43.5 PSI (3.0 bar).
- Check that the emergency cut off is unlocked.
- Check that the quick-disconnect plug is firmly connected.

If problem persists, contact **your distributor or LION** for assistance.

MAGNUM IS NOT LIGHTING...PROPANE IS FLOWING...

MAGNUM's pilot system is very robust and should not have any problems with ignition during normal usage. However if the system is used with the pilot cover off or water, foam, powder, or chemical is discharge directly down MAGNUM's pilot tubing, the system will have ignition problems.

- Water can cause the sparker to spark incorrectly. In this case, wait five minutes and allow the water to evaporate or use high flow compressed air directed down the pilot tubing to knock it away.
- Dry chemical power clouds can momentarily prevent the propane from reaching the spark. Allow the system to rest for 30 seconds to a minute and try to reignite. If this is the cause, make sure to thoroughly clean the system after the class.
- Foam and other wet chemicals discharged down MAGNUM's pilot tubing can cause the pilot orifice to become clogged. Call LION for assistance with cleaning the pilot and orifice.

12. 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 MAGNUM 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.

13. CONTACT INFORMATION

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NOTES



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