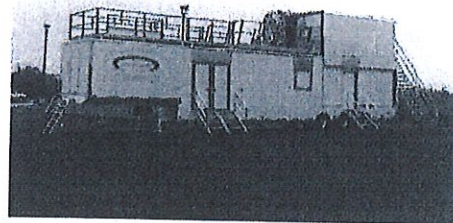
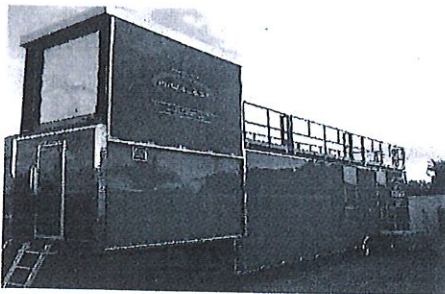
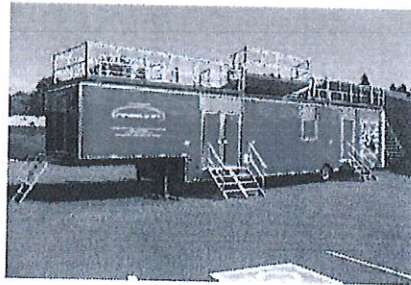




**FIREBLAST 451, Inc.**  
**Fire Training Simulators**

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# Owners Manual

FIRE TRAINING SYSTEMS

# Owners Manual

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## Introduction

Thank you for purchasing a *Fireblast 451*, Inc. fire training system. This is the operational manual for your Fireflash Trainer, and is supplied to you for your reference and convenience. Safety is paramount to us; therefore, we ask that all operators are familiar with this material.

Our commitment at *Fireblast 451*, Inc. is to provide fire service personnel with reliable training facilities and systems that will meet the needs of the fire service for many years. By utilizing fire service professionals to develop and design our training products, we can offer the most realistic and effective forms of live fire training available.

*Fireblast 451*, Inc. offers a full line of live fire training systems including gas-fired props, portable units, multi-story training facilities, as well as simulation software - all of which are sensibly designed to create realistic surroundings, with safety being our number one concern. Our team is confident that we have developed one of the most valuable training systems used in live fire simulation today.

*Fireblast 451*, Inc utilizes the latest technology in live fire simulators with programmable logic controllers (PLC), ultra violet flame detection, and touch screen operator interface. This allows the operator to have the capability of choosing a variety of fire scenarios while manually controlling flame realism.

*Fireblast's* commitment to the environment has allowed the fire service to continue to train firefighters without polluting the environment. Gas-fired props may be operated even under environmentally restricted conditions in many areas in the U.S. By utilizing gas that vaporizes quickly, the soil, ground water and the air are not contaminated.

### Mission Statement

*Fireblast 451*, Inc. is committed to providing a reliable and realistic live fire training environment in which the central concern is educating fire service personnel to aid in the prevention of loss of life and property.

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# Section 1- General Information

## 1.1 Operational Instruction

A date will be scheduled for *Fireblast 451*, Inc. to provide operational instruction for your agency after the live fire training system has been delivered and installed (if applicable). *Fireblast 451*, Inc. will provide instruction to a minimum of two persons and a maximum of eight persons from your agency. An authorized agent from *Fireblast 451*, Inc. will be the only person with the authority to give such instruction.

No person shall operate any training unit unless and until that person has completed the requisite operational instruction with *Fireblast 451*, Inc. If any person, other than the one who has successfully completed the operational training course and/or who is not identified and has not signed the "Addendum to Operational Instruction of the Live Fire Training System," operates the training unit, such use shall void any and all warranties and/or liabilities of *Fireblast 451*, Inc. in any way related to or arising from training unit and/or its use, operation and/or maintenance. It is recommended that each operator have a minimum of 10 hours of operation on the unit prior to having student involvement.

Any instruction requested by your agency for additional personnel can be obtained at your expense directly from *Fireblast 451*, Inc. only. By signing the attached "Addendum to Operational Instruction of the Live Fire Training System" you acknowledge and it is expressly understood and agreed that you individually assume any and all risk of damage, loss or permanent injury, including death, to yourself and other persons arising from or related to operation of the unit in a negligent and/or manner inconsistent with the unit manual and/or your operational training.

*"The Operational Instruction Form and the Certified Operators of Live Fire Training System shall be provided and maintained by Fireblast 451, Inc."*

## 1.2 Certified Operators

The live fire training system manufactured by *Fireblast 451, Inc.* shall only be operated by the personnel of \_\_\_\_\_ Fire Department who are specifically and exclusively identified below by their name and corresponding signature, who certify that they have successfully completed the operational instruction course provided by *Fireblast 451, Inc.* on \_\_\_\_\_. In addition, each operator below has been supplied with a personal password. It is your responsibility to ensure that no one else uses your password. **DO NOT LET ANYONE OPERATE THE LIVE FIRE TRAINING UNIT USING YOUR PASSWORD.** By doing so, you are assuming full responsibility for any damage, injury or even death that may occur. By identifying yourself below and signing this Addendum you acknowledge successfully completing the operational instruction course provided by *Fireblast 451, Inc.* and having read, reviewed and agreeing to the attached Operational Instruction form.

Those people are named as follows:

<b>Print</b>	<b>Signature</b>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
Agent for Owner-Print	Agent for Owner-Signature
_____	_____
Agent for <i>Fireblast 451, Inc.</i> -Print	Agent for <i>Fireblast 451, Inc.</i> -Signature

**"The Operational Instruction Form and the Certified Operators of the Live Fire Training System shall be provided and maintained by *Fireblast 451, Inc.*"**

## Section 2- Safety

### 2.1 Recommendations

The ongoing training of firefighters is the cornerstone of good fire protection in today's world. However, the benefits derived from live fire training can be negated by injuries and unexpected events using abandoned buildings with Class "A" fuel.

It is our goal to provide alternative methods and techniques that accomplish traditional fire attack methods. Our mission is simple, to provide opportunities and resources for maintaining and improving acquired skill and knowledge, and to facilitate properly managed fire suppression activities with minimum exposure to risk for the participants.

Definitions:

**Fire Control Officer (FCO)** is defined as the individual responsible for the set-up and operation of the control room systems.

**Lead Instructor (LI)** is defined as the individual responsible for the students in the room or unit. This is commonly known as the instructor.

**Safety Officer (SO)** is defined as the individual responsible for the overall safety of all personnel at the drill.

Only the manufacturer and it's expressly designated agents are qualified to train the Fire Control Officers.

Only FCOs with the qualification provided by the manufacturer shall operate the live fire controls, screens and valves.

Agencies not following the above described training requirements, or substituting personnel that do not meet the qualifications will risk injury or death to the FCO, LI, SO, students, and persons in proximity of the unit and/or damage to the unit or facility.

Any person not qualified to operate the system and does so at his own risk, accepts full responsibility for any injury or death that may occur, and also any damage to the unit that may occur. Unauthorized personnel operating the unit will also cause the manufacturer to void all warranties.

\* We strongly recommend that your agency utilize the following documents to ensure the highest level of safety for all participants and trainers:

- N.F.P.A. 1403
- N.F.P.A. 1021
- N.F.P.A. 1001
- N.F.P.A. 1500

Gas-fired props will provide excellent recruit training and a wide variety of challenging evolutions for the seasoned veterans. The key to success while utilizing these units is the organization of the training exercises and the quality of instruction. Due to the nature of fuel and the systems, it is of the utmost importance that your agency provides quality individuals to be qualified as FCO. Your LIs need to be of the same quality, with a high degree of fire behavior and fire attack knowledge.

\*We strongly recommend your instructors receive a class on LPG or Natural Gas properties and characteristics, review of indirect and direct fire attack methods, and training in flashover recognition and prevention.

- ANY PERSON NOT QUALIFIED TO OPERATE THE SYSTEM DOES SO AT HIS OWN RISK AND TAKES FULL RESPONSIBILITY FOR ANY INJURY OR DEATH THAT MAY OCCUR, AND ALSO ANY DAMAGE THAT MAY OCCUR TO THE UNIT.
- SPECIAL TRAINING AND KNOWLEDGE ARE REQUIRED TO USE THIS UNIT.
- YOU MUST THOROUGHLY READ AND UNDERSTAND ALL MANUFACTURER'S INSTRUCTIONS BEFORE USE.
- USE AND INSPECT THIS UNIT ONLY IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- YOU CAN CONTACT THE MANUFACTURER AT 800-716-1977, FAX 951-279-1705 OR [www.fireblast451.com](http://www.fireblast451.com) FOR IMPORTANT SAFETY INFORMATION.

**Warning!** To prevent the risk of electric shock, or other harm, do not open the electrical panel. There are no user-serviceable parts inside. Do not unplug the power supply cord to the panel with power being supplied to the panel.

**Warning!** Do not modify or perform any work on the unit. Unqualified persons who modify the unit do so at their own risk, and accept full responsibility for any injury or death that may occur, and also any damage to the unit that may occur. Unauthorized personnel modifying the unit will also cause the manufacturer to void all warranties.

**Warning!** Your *Fireblast 451*, Inc. simulator has been designed to operate using only the gas specified at the gas inlet or tank connection. Do not attempt to convert your unit or operate using other gases. Failure to follow this warning could lead to a fire hazard and bodily harm and will void your warranty.

**Warning!** When utilizing LPG tank supplies, be sure to have your LPG (propane) tank filled by a reputable propane dealer and follow all applicable codes and/or regulations. An incorrectly filled or an overfilled LPG tank can be dangerous. The overfilled condition combined with the warming of the LPG tank, can cause LPG to be released by the pressure relief valve on the tank since temperature increase causes the propane to expand. LPG released from the tank is flammable and can be explosive.



**Caution!** For your safety, do not store or use gasoline or other flammable vapors or liquids in the vicinity of the gas operated burn props.

**Caution!** For your safety, if you smell gas:

1. Shut off the supply.
2. Shut off the control valves in the control room, turn on exhaust fan, and notify everyone to exit the unit or structure.
3. Open all doors and/or ventilation openings for 5 minutes.
4. Notify the manufacturer or authorized repair facility.

**Caution!** Prior to being permitted to participate in live fire training evolutions, the students should receive training to meet the performance objectives for Firefighter I of the following sections of NFPA 1403, 2007 edition Chapter 5, 5.1.1.

**Caution!** The units are supplied with emergency buttons located throughout the unit. These emergency buttons are for the use by anyone in or around the burn props that feels an unsafe situation could, or is occurring. Activate the button by depressing the button. The control valves will shut off and the exhaust fan will start. In order for the system to reset, the button must be returned to the out position.

**Caution!** It is very important that you are in good physical condition. Health problems such as heart conditions, high blood pressure, emphysema, and diabetes may prohibit your participation in this program. If you have medical conditions or do not exercise regularly, consult your physician before entering the units. Good hydration is imperative because of body fluid loss that you will experience while training. Drink plenty of fluids starting the day before the training. After completing the training classes, it is advised that all protective clothing be laundered according to the manufacturer's recommendations to eliminate cross contamination.

**Caution!** For your safety, the FCO should assure that there is absolutely no consuming of alcoholic beverages or use of drugs or controlled substances prior to or during training. **Use of these substances during training increases the potential for workplace accidents and errors that can pose a serious threat to the health and safety of the operators, trainers, trainees and others.** Therefore, use of alcohol, illegal drugs, or controlled substances that affect workplace performance or conduct should be prohibited during operation or use of the training unit.

**Caution!** All personnel not required to wear full protective clothing as required by N.F.P.A , shall wear head, eye and hand protection when in, or around the burn rooms, control room or units.

**Caution!** The student instructor ratio for live fire training shall not exceed (1) instructor inside the burn room for every (5) students.

**Caution!** The FCO shall complete the safety checks and document the checks on the safety check sheet (or log) prior to initiating a burn sequence.

**Caution!** The burn rooms shall not exceed 200-300° F at the 5' level in each room. The system temperature sensors will shut down the operation of the system by going into the purge mode if the temperature reached 500° F. Any modification to the temperature probes in order to achieve elevated temperatures will void the warrantee and require the owner to assume all responsibility for injuries that may arise from these actions. Training is the goal, NOT EXTREME HEAT!

**Caution!** The second story rooms (if equipped) require only trained personnel to operate the lift pendants. The exterior doors and windows must all be closed prior to moving the exterior walls up or down. Failure to secure the doors and windows will result in severe damage not covered under the warrantee.

**Caution!** During the set-up of the Two Story Unit or the Double Two Story unit, it is critical that you **DO NOT** turn the key on at the control panel until both exterior second floor walls are in the raised position.

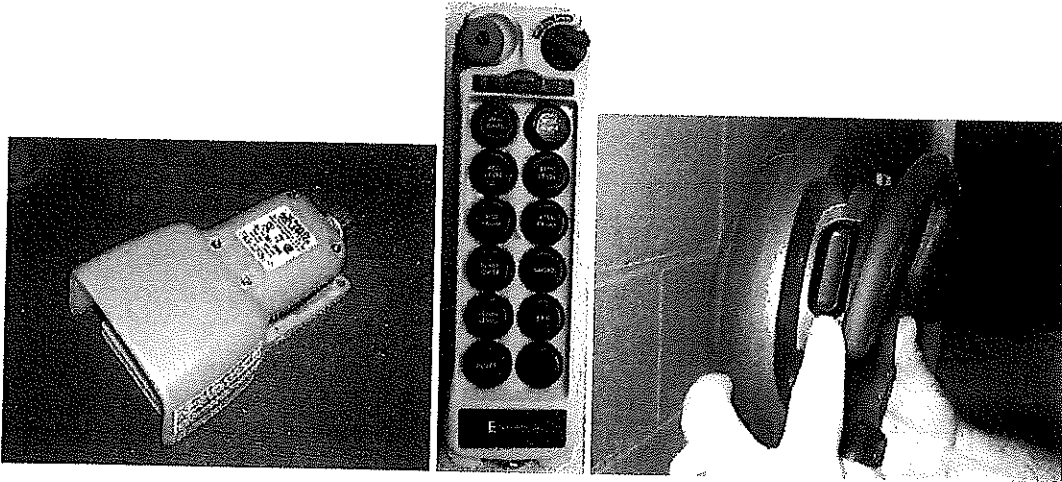
# Section 3- Safety Systems

## 3.1 Recommendations

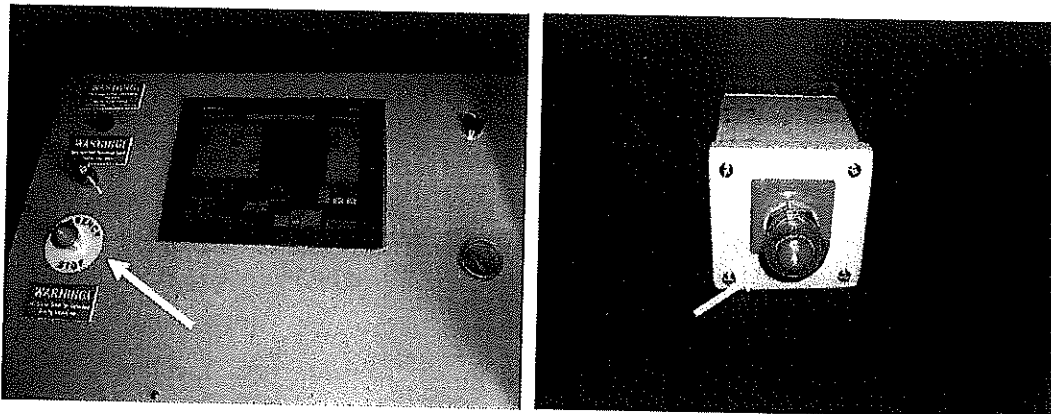
Fireblast 451, Inc. provides safety systems based on the model and the specifications requested. The following systems are available based on your model.

- Fireflash Trainer
  - Fire Control Officer login with password
  - External and internal E-Stops
  - Wireless Pendant E-Stop
  - Temperature Sensors
  - Gas Detections system
- Fireflash II Trainer
  - Fire Control Officer login with password
  - External and internal E-Stops
  - Wireless Pendant E-Stop
  - Temperature Sensors
  - Gas Detections system
  - Fault interrupt lift system for second story
- Multi-Trainer
  - Control Room
  - Dead man pedal
  - Fire Control Officer login with password
  - External and internal E-Stops
  - Temperature Sensors
  - Gas Detections system
- MTS Fireflash Trainer
  - Control Room
  - Dead man pedal
  - Fire Control Officer login with password
  - External and internal E-Stops
  - Temperature Sensors
  - Gas Detections system
- Advanced Trainer
  - Control Room
  - Dead man pedal
  - Fire Control Officer login with password
  - Mobile Touch Panel interior controls
  - External and internal E-Stops
  - Temperature Sensors
  - Gas Detections system
  - Fault interrupt lift system for second story
- DTS Fireflash Trainer (Same as Advanced Trainer)

The FCO has the ability to enable the burners by either the activation control (dead man pedal) on the floor; or the Enable switch on the wireless system, or enable switch on the MTP (mobile touch panel), this will communicate to the PLC that the FCO is ready. The system will not operate the burners without one of these depressed and or held down.



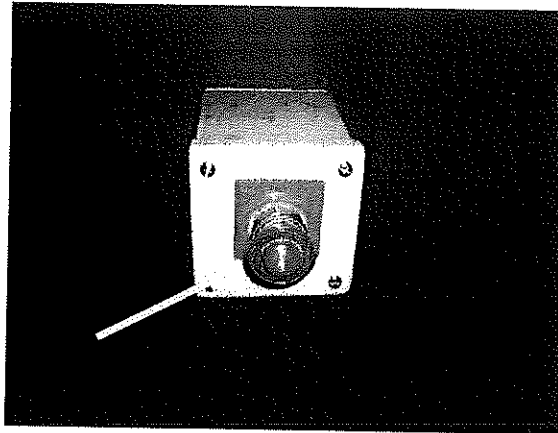
The FCO, LI, and all students have the ability to depress any one of the emergency buttons. Their locations include, but are not limited to, the control room, the burn chamber; aft left side, forward right side, and pendants (make a note of button locations in your unit prior to commencement of training). The SO can depress the exterior or others as installed by the manufacturer.



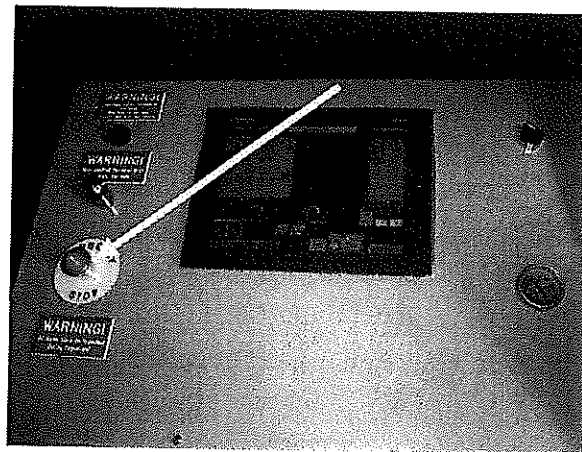
The PLC and a series of ultra violet flame sensors also monitor the flame quality and will close the main valves in the event the pilot goes out prematurely or a loss of quality flame on a prop occurs. In this event, the PLC will automatically start a prop reset cycle.

In the event of the activation of one or more of the safety systems, the buttons will flash red, indicating an emergency shut down has occurred. **They will not reset themselves.** The safety systems must be reset in the event they are tripped by either manual or PLC control. The system will automatically shut off the main valves, and purge the system until the system is reset. The FCO should determine the cause and consult with the LI and SO before resetting the system.

Reset manual buttons by pulling them out after determining the cause and allow the system to complete the cycle of exhaust and reset.



Models equipped with control room have an E-Stop located on the podium.



## 3.2 Communications

With control room equipped models, the communication between the **FCO** and the **LI** must be clear. The **LI** should confirm the gas-fired prop is in a burning status prior to the students being allowed to enter the room(s). The exception would be when a fire behavior class being delivered. During a fire behavior class, the students shall be in full protective clothing including SCBA when the gas-fired prop is ignited and shall remain on the floor throughout the demonstration of fire growth, rollover and nozzle theories and practice.

With non control room models or those with wireless and MTP's, the FCO will be in the burn chamber with the students therefore they will need PPE and need visual contact with the students or crews.

Communications shall have a minimum of two forms- radio and hand signals. The **FCO** and **LI** shall follow an agreed upon set of hand signals in the event of radio communications failure. The **LI** shall terminate all exercises without one form of the described communications. The activation of the safety switch will terminate the exercise.

**Safety shall be the number one priority when using the Fireflash Trainer.**

If you have any questions, always feel free to contact *Fireblast 451, Inc.*

## Section 4- Set-Up

### 4.1 All Fireflash Units Overview

The FCO is responsible for all operations in regard to the unit itself. Strict safety practices shall be applied to the training system for live fire training evolutions. These practices vary greatly in the degree of application where comparing simulators to acquired structures. By nature, simulators have been designed specifically for the purpose of repeated live fire training evolutions and include safeguards, and become unacceptably hazardous only through misuse or improper maintenance.

This unit shall have a minimum of 50 feet of clear space surrounding the live fire unit and shall be level side to side and front to back. The simulator shall be inspected visually for damage prior to set-up and live fire training. All damage shall be documented and submitted to the SO. The structural integrity of the unit shall be evaluated and documented periodically, but at least annually. Inspections should include the plumbing under the unit. Where the simulator's damage is severe enough to affect the safety of the students, training shall not be permitted.

- Establish parking/set up location based on site security, proper clearances from overhead wires, combustibles and other hazards, and with regard to water supply.
- Unit must be level when in operation.
- Unlock and open all exterior doors from the outside. NEVER open any doors or windows from the interior prior to second story rooms being raised. This will cause damage to the unit.
- NEVER burn the unit without the second floor rooms being raised if equipped! This also will cause damage to the unit.
- Remove all stair platforms and railing sections and place at entry doors.
- In the mechanical room, perform checks as described on the check list, including turning on propane, checking fluids in the generator, compressor, and smoke machine reservoir.
- Start the Generator
- Turn the "Master disconnect switch to on".
- Set up the rear stairs to the unit (if equipped).

#### Two Story units

- Acquire the Lift pendant and Pendant interrupts and plug into the receptacles on the Two Story Unit and Double Two Story Units only.
- Raise the walls and roofs of each room on the Two Story Unit and Double Two Story Units only.
- Raise the interior walls of these rooms and secure with provided bolts.

#### All Units

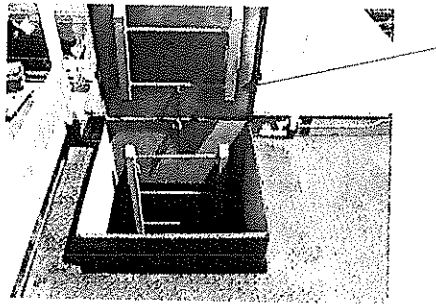
- On the roof, erect all railings and the roof prop
- Check the E-Stops to be in the out position.

## Warning!

- Assign Safety Officer prior to any system test involving fire.
- Non control room models enter the mechanical room and proceed to the login-in procedure.
- Control room models, enter control room and proceed to the login-in procedure.
- Perform safety gas checks

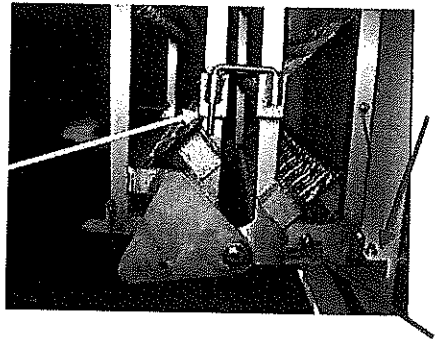
## 4.2 Ship Hatch Operation (if equipped)

The hatch needs to be unlocked from the interior, and when the hatch is opened, be sure to lock the side support arm before placing weight on the upper part of the ladder.



## 4.3 Rear Stair Set-up (if equipped)

Begin by having two members remove the bolts securing the stairs to the trailer. (Red Arrow)



Then Remove the stair frame pin from the frame. (Blue Arrow)

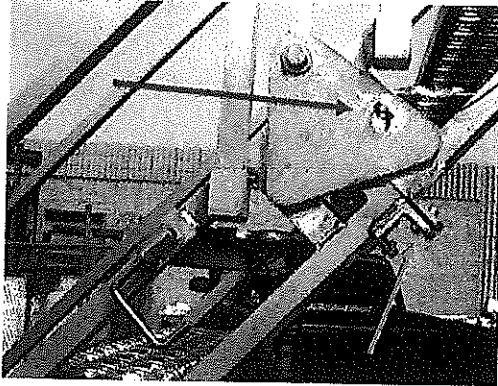
Then while both members are grasping and controlling the outer rail of the stairs, unlock the side safety pins. (Yellow Arrow)

**Warning!** The two members are required to hold pressure towards the trailer not to allow the stairs to fall open.



**Warning!** Keep hands and fingers clear of pinch points at hinge area.

The two members shall walk the stair section out away from the trailer and secure the stair frame pin. Blue Arrow



Then install the bolts into the tabs under the bottom rail to secure the stairs. (Orange Arrow)

**Warning!** Without the railings in place, a fall hazard is present. Only one person shall install the stair railings so that not to crowd the stairs and create a fall hazard.

Install railings on the stairs by beginning with the lowest sections, then the upper sections.

#### 4.4 Rear Stair Storage (if equipped)

- Remove and store the railings
- Remove the bolts from the tabs under the stairs
- With two individuals holding the beam of the stairs, remove the stair frame pins
- Walk the bed of the stairs to the trailer and secure with the small bolts
- Fold the stair section up and secure with the side safety pins
- Replace cotter pins

## 4.5 Second Story Room Set-Up for the Fireflash II, MTS Trainer, Advanced Trainer and DTS Trainer

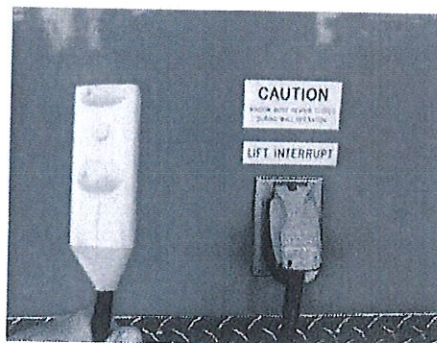
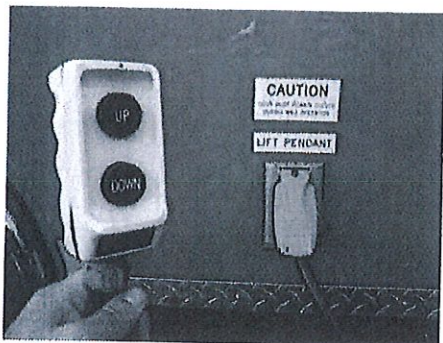
**Caution!** The unit must be level side to side!

**Caution!** If this procedure is not followed serious damage to the unit may occur!

**Warning!** Do not turn on the podium key in the control room until all second story rooms are in the up position!

With the generator and “Master Disconnect” ON, locate the Lift Pendant and the Lift Interrupt pendant.

The Lift Pendant is plugged into the Drivers side of the trailer front. Another person shall plug in the Lift Interrupt pendant to the front passenger side.



**Warning!** The two personnel raising the exterior walls are responsible for observing the sides of the trailer and overhead to prevent the walls from lifting into a foreign object. All other personnel must step away from the unit while this operation is being performed.

**Warning!** Observe the walls and roof going up for any tilting or non movement of one of the lift mechanisms.

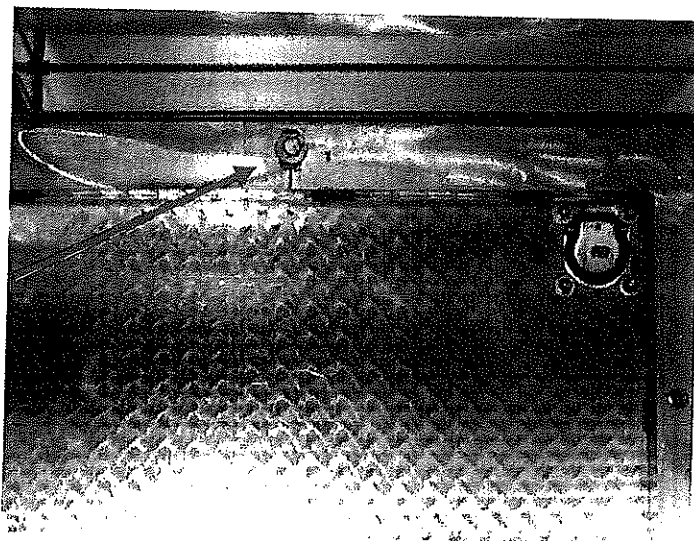
In order for the outside walls to be raised, both pendants must be plugged-in and the Lift Interrupt pendant must be depressed as a safety feature. The walls will stop when they reach full height.



Unplug the pendants and repeat the process for the rear 2 story room walls (if equipped).  
Once the exterior walls and roof are in the raised position, access the roof via the rear stairs or ladder.

**Warning!** A fall hazard exists until the railings have been erected and secured!

Erect all railings on the roof assembly to provide fall protection.  
With two personnel lift the hinged wall into place and secure to the roof section utilizing two bolts  
provided as shown below (hand tight only).



Once the walls are secured, you may open the basement access in the front room and retrieve the interior railing and place it next to the interior stair access.

The two story room(s) are complete.

## 4.6 Lowering of the Two Story Rooms

Log-out of the computer and turn the key at the podium or master panel in the "OFF" position.

**Warning!** Inspect 360 degrees around the outside of the trailer and secure all doors and windows in the closed positions prior to continuing this process!

**Warning!** The generator door must be closed prior to lowering the second story!

Lower the interior railing from the front 2 story room if equipped. Close the basement access hatch and with two personnel, one holding the wall, remove the bolts at the roof level from the first wall to be lowered and lower the wall. Repeat this for the remaining wall. Repeat this for the second room.

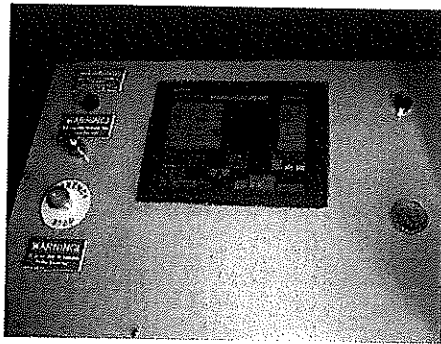
Inspect the space and walls that are in the down position to assure they are completely down. Exit the roof and plug in the Lift pendant and the Lift Interrupt pendant and lower the roof and wall assembly. Repeat for the second room.

Once completed the exterior stair cases can be stored.

## Section 5- Operation

### 5.1 DTS Trainer Control Room

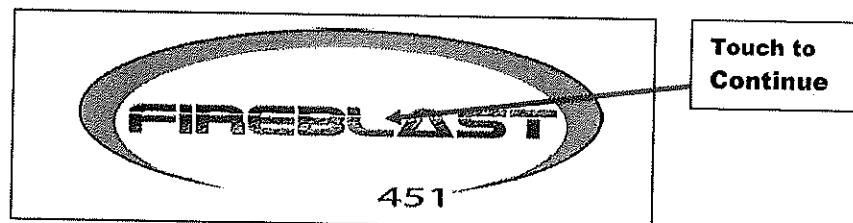
At the heart of the Trainer is the PLC unit, which is controlled by a touch panel screen located in the control room. All operations, safety systems and controls are monitored and operated here if the unit is equipped with a control room. This touch screen may be located in the mechanical room if the control room is not provided. The "Touch Panel" (TP) is designed to be operated in a semi-dry environment. Clean the TP at regular intervals using a damp cloth. Do not clean the TP while it is on. Either switch the unit off or press clean screen on the TP. This ensures that functions are not triggered by inadvertently coming into contact with the TP. The TP requires a bare hand or finger to operate the touch buttons.



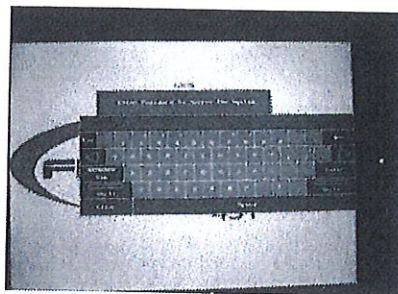
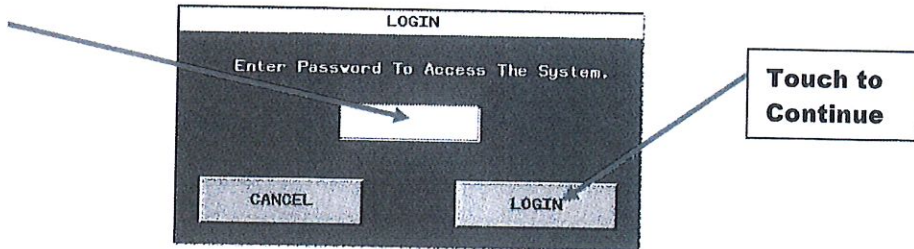
**DO NOT DROP ITEMS ON THE TOUCH SCREEN!**

### 5.2 Start-Up

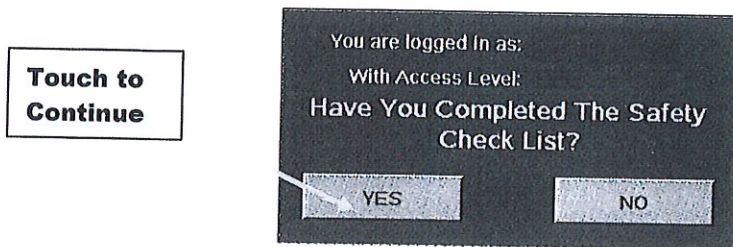
Once the panel key has been placed in the "ON" position, the PLC will go through a self-test and will check the systems. The Fireblast logo will appear. Touch the screen at anytime and it will take you to the password screen.



The Password Screen will display a blue box in the screen. Touch the box and a keyboard will appear on the screen. Enter your assigned password and press enter.  
**Note: You must press the enter button to gain access to the system!**  
**Then touch the LOGIN Button!**



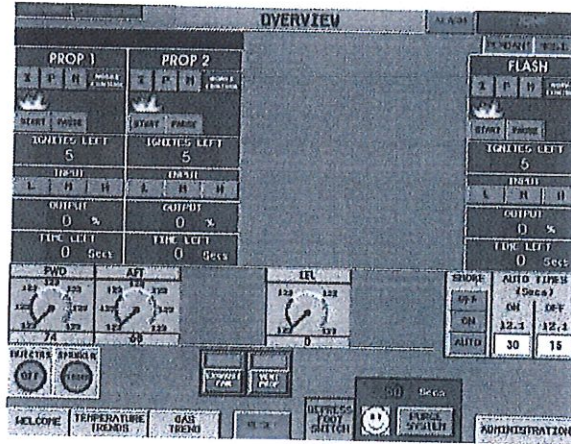
The System Login Screen will display and prompt you to answer if you have completed the safety check list. **Note: If the checklist is not complete press "NO" and continue your safety checks.** If safety checks are complete press, "YES" and continue to the overview screen.



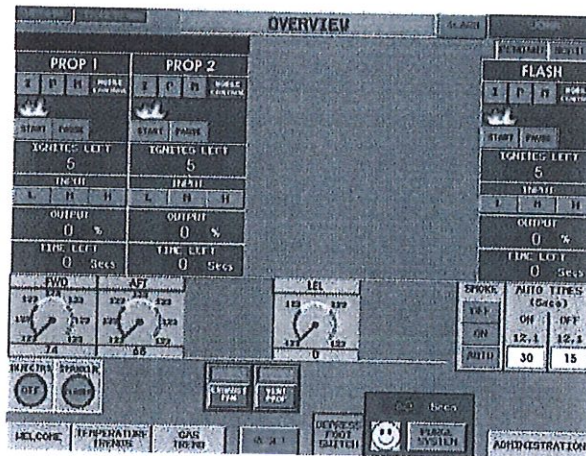


### 5.3 Overview Screen

The Overview Screen is where all of your operations will begin. From this screen, the FCO can access the Temp Screen, Gas monitoring screen, Exhaust Fan, Smoke Machine, light any prop, and any adjust mode of operation (based on your access level). This screen is also where all help screens may be accessed as well as administration screens. Press administration and a list of options (based on access level) will appear.



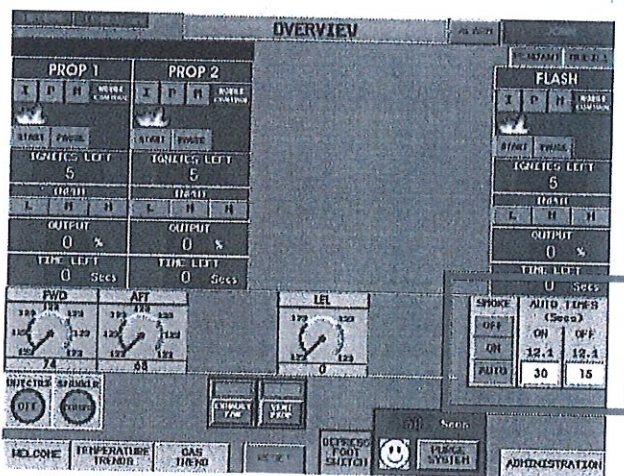
Based on the model you have received, the models with the TP located in the “Master Panel” in the mechanical room you will log-in and establish control of the wireless pendant. If the TP is located in the control room podium, you will operate the burners from the podium.



## 5.5 Exhaust Fan / Smoke Machine

*The Exhaust Fan* can be used by the operator as needed. By simply touching the exhaust fan box on the main screen panel, you can evacuate smoke between evolutions if needed, or to assist in cooling during operations.

*The Smoke Machine* if supplied can be powered by touching the screen on the MDG models (as shown below), and on the Unifire models by utilizing the controls on the smoke machine panel to the right of the TP to adjust the amount of smoke and duration. Various models are used in this unit, please read the manufacturer's operation manual prior to operation. The smoke machine is only effective with the burn room in a cooled condition. Theater smoke is water based and is consumed by high heat. **The smoke machine should never be allowed to run out of smoke fluid. This will cause damage to the smoke machine and void the warranty!**



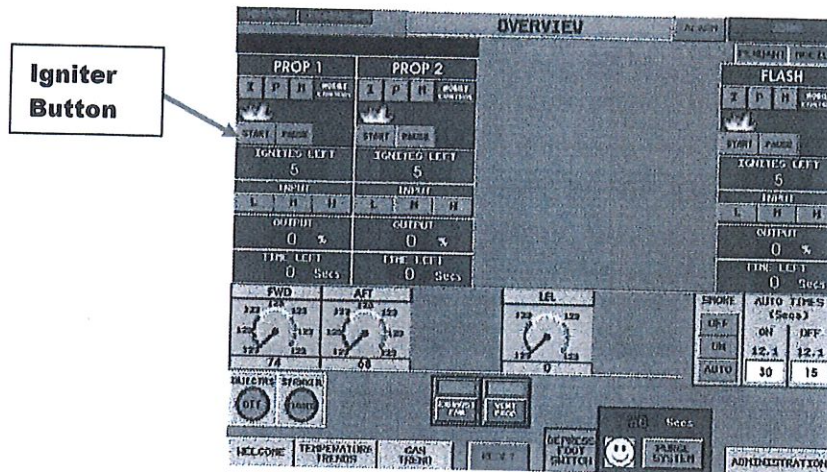


## 5.6 Ignition Procedures

**Warning!** Perform the gas detection checks as identified in the operational training class prior to ignition of the props.

### Ignition procedures from the control room.

The following is an example of the procedures used in starting a prop:



- With the props enabled by the “Dead Man” pedal, touch the prop Start button, the PLC then activates the pilot system. This allows a small fire (pilot) to initiate inside the prop. The pilot detection system will then display flame verification on the screen. This will allow you to observe a small flame or glow in the prop from the control room.  
When the system is satisfied that a good flame exists, the computer will transition to the main burner. A % valve will appear on the screen as an output on the selected prop. The output % valve will hold for approximately four seconds. Once the prop is lit, select “Low, Medium or High”
- This process may be repeated for each prop. The system will allow for three props to be utilized simultaneously. Each prop has its own timer that will shut off the prop when the timer expires. The floor burners will burn 180 seconds continuously without interruption. When the time expires, the rest period is 20 seconds before you can ignite the prop again. The flashover prop will burn for 15 seconds with a 20 second rest period. The pause button can be used to extend burn time as instructed in the operational training.

## 5.7 Flame Control

Three modes of operation are available to models with control rooms, fixed, buttons, or joysticks. They can be selected by the user by touching the "Administration" button, then "System Settings". Select "Button", "Joysticks", or "Fixed mode".

The systems operation will be based on the modes as follows:

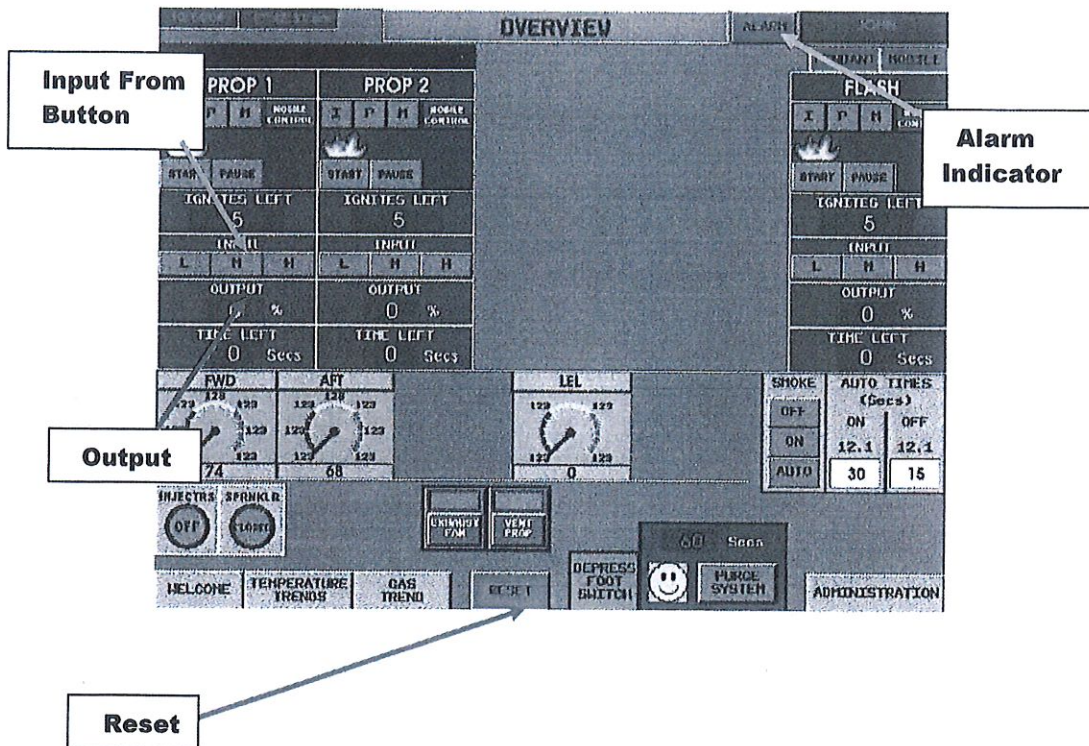
**Fixed:** From the pilot mode, the % valve on the output section will increase to a preset valve. The base fire will grow to a set height and continue to burn until either the operator presses the main button in the off position, the operator's foot is removed from the foot pedal, an e-stop is activated, or a safety violation is noted by the PLC.

**Buttons:** From the pilot mode, the % valve on the output section will increase to a preset valve. The base fire will grow to a set height. To control fire growth, press the "L", "M", or "H" button on the prop you have selected. By pressing "M", the fire will grow to a medium fire. By pressing "H", the fire will increase to a high fire mode. To return to "Start Fire Mode", press the igniter button during the burn. The mode will default to "Start Mode" each time you press the igniter button. The operator at anytime during an evolution may adjust the flame up or down by selecting the button of choice. To stop the prop, the same methods are used as above in Fixed Mode.

### Joystick

**Equipped:** From the pilot mode, the % valve on the output section will increase to a preset valve. The base fire will grow to a preset height. This valve will remain for a total of four seconds. The operator must move the joystick to adjust input % valve on the selected prop to a value more than 20%. Failure to do so will constitute a failure to light message and purging will begin. Once the input valve exceeds 20%, the operator will gain control of the flame and will be able to regulate from a low to medium, or high fire. To stop the prop in joystick mode, all methods above in buttons and fixed mode apply. In addition, anytime the joystick % falls below 10%, the prop will shut down

**Note:** Always assure that the joystick output percentage is returned to 0% or below 5%.



*If a fault occurs or pilot does not ignite during the ignition sequence, the system will shut down. A system purge will begin.*

This brings up the alarm indicator button located on the top of the screen. The system will continue to purge and a “Reset” button will appear in the lower middle of the screen. The operator must press the alarm indicator button to view the Current Alarm screen. The operator upon correcting the error must press the Reset Button. The operator must press the “Purge” button to start the new cycle. This is a safety feature confirming the attendance and attention of the operator.

After the purging is complete, the system is ready to repeat the process.

All Fireblast props have the same ignition sequence as described in the previous instructions.

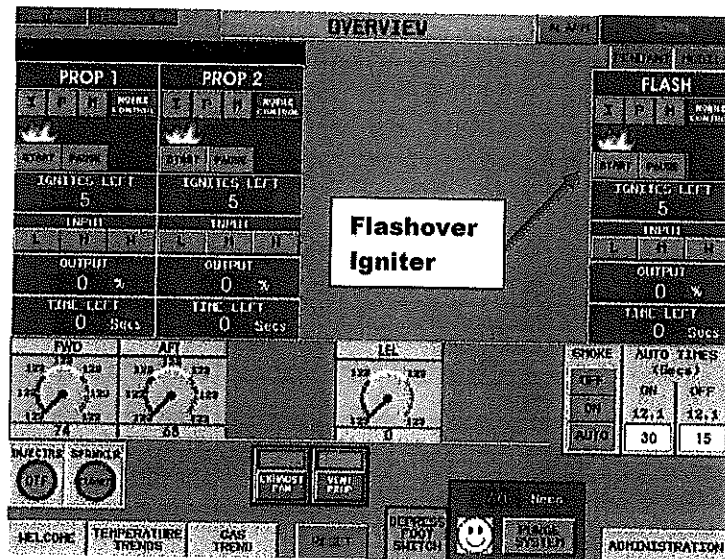
**Pilot Mode:** Additional props may be installed in your unit; an example would be an electrical panel fire. This prop will burn in pilot mode only. Operation is the same as Fixed Mode, however, only allowing it to stay in Pilot mode without transition.

In the event the operator removes their foot from the safety pedal, the main valve will close and the flames on the props will slowly burn out. Likewise, if any of the safety buttons are depressed, the main valve will shut off the gas to the props and they will slowly burn out.



## 5.8 Flashover/Rollover Procedures (Control Room Models)

The Flashover system is activated in the same manner as the fire props. To activate the Flashover system, press the TP Flashover start button, this will provide gas to the flashover pilot system. Upon verification of adequate pilot flame, the main flashover/rollover burner will ignite. The system is preset to operate in fixed mode.



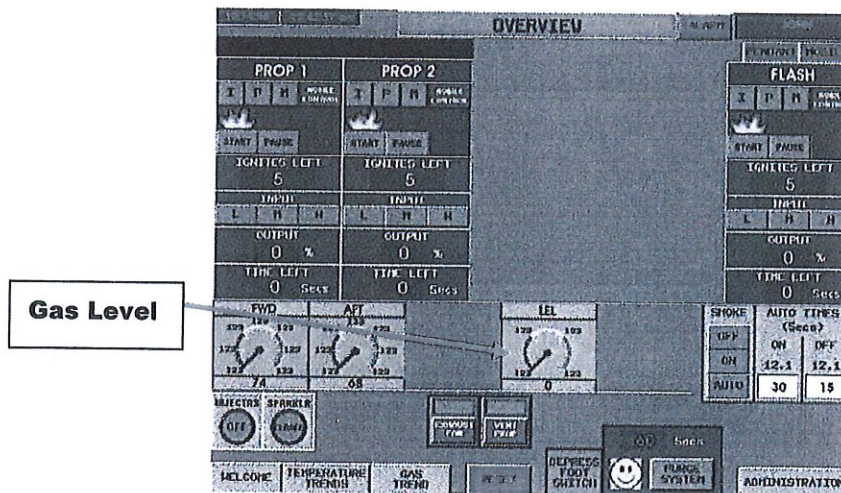
Fixed mode will offer consistent roll of fire across the ceiling. In order to provide a burst of flames, press the "Pause" button and then press pause again to burst flames. The flashover bar is provided to simulate a ceiling fire that is reaching a flashover condition. The students must be trained to recognize the condition, and extinguish or cool the ceiling prior to extinguishing the prop on the floor.

The Flashover/Rollover prop has an internal timer that will reset the system in approximately 15 seconds based on factory settings.

## Section 6 – Gas Monitoring

### 6.1 Operation

This unit is equipped with a gas monitoring system that monitors the “Lower Explosive Limit” or (LEL). The overview screen, in the lower middle area, displays the **Gas level** in % of LEL or Lower Explosive Limits that are currently inside the unit or facility.



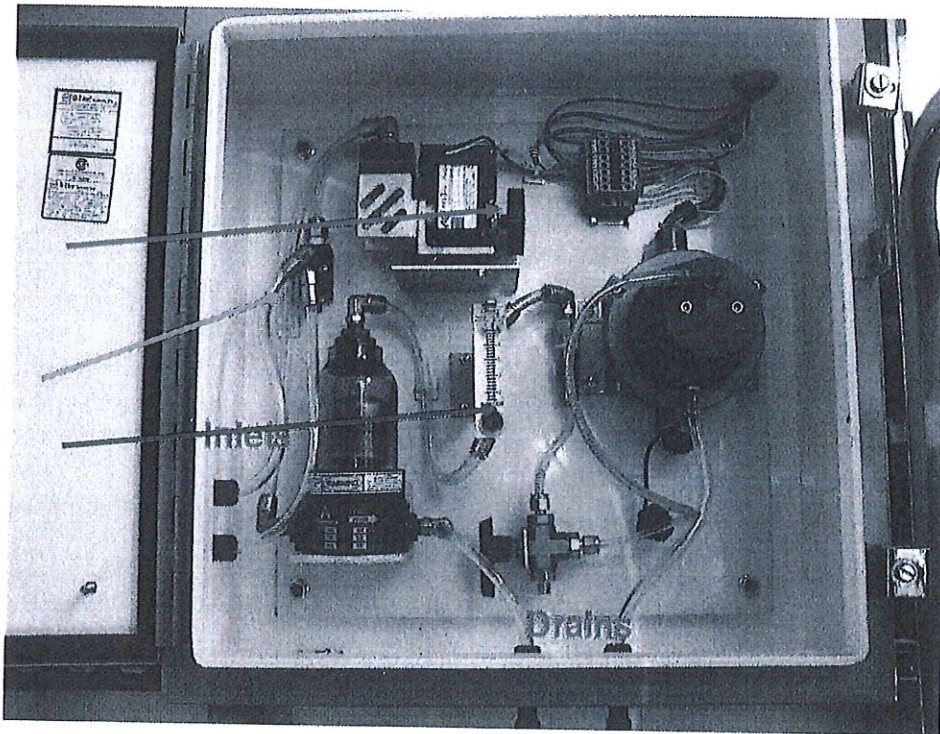
If the level of gas increases to 15%, the gauge needle will rotate to the yellow area and an alarm will also beep and indicate that an unsafe level may be approaching. Upon a level of 25% of the (LEL), the system will automatically shut down, purging will begin, and the gauge needle will be in the Red. The alarm will continue to go off until the unit detects levels below 15%. No operation will be allowed by the system until the level falls below 15%. A Reset button will appear on the touch screen and the **FCO** must press the button. An Alarm indicator will appear. Press the button on the TP. The system will then need a purge cycle to continue.

The Gas Monitoring System can only be viewed from the touch panel or gas trend screen. In the pendant mode the operator will not visually see the gas reading. The only indication will be a shutdown of the system. Upon a continuous purge that lasts indefinitely, call the manufacturer for assistance.



The gas monitoring system needs to be gas checked daily for safe operation of the burn trailer. The FCO shall set up the trailer then login to the system, and then perform the gas check by using propane to flow a 5 second flow to the pick-up tubes in the burn chamber. The FCO should be able to see the gas reading change on both the Touch Screen in the control room and on the MTP pendant. Once verified that the gas detection system picks up the gas and responds, the safety checks are complete.

In the event the gas detection system does not read the gas, repeat the process. If still no reading is observed, go to the mechanical room and with the system "ON" open the gas detection system enclosure as shown below.



1. Check the pump to be running.
2. Check the hoses to be all connected.
3. Check the Vacuum meter for the ball to in the .02 - .03 range

If the pump is not turning, tap it or check the circuit breaker.

If the vacuum meter ball is resting at the bottom of the gauge, tap the housing to break loose the rubber ball. If the rubber ball is at the top of the gauge it could mean that the line is plugged. It could require you to blow out the lines back to the trailer.

## Section 7 - Maintenance Section

### 7.1 Schedule

Proper and regular maintenance by your agency will directly affect the operating efficiency and performance of the system. If the maintenance as described in this section has not been performed, the manufacturer will charge for service due to poor maintenance practices.

The maintenance of our units is divided into four categories:

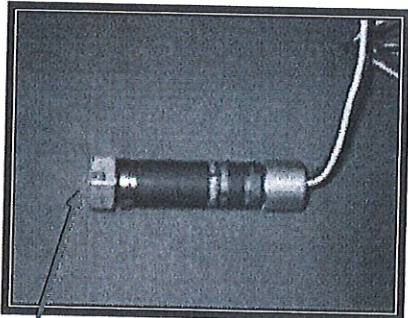
1. User daily maintenance
2. User 80 hour maintenance
3. User storage
4. User annual maintenance

This section will address daily, 80 hour and storage of the unit.

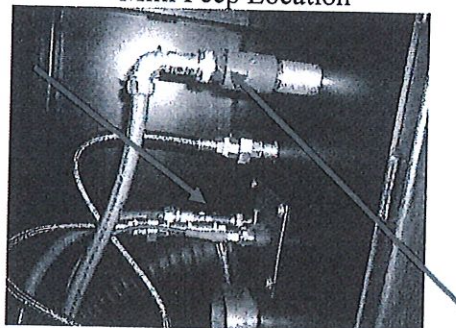
### 7.2 User Daily Maintenance

Daily Maintenance “Cleaning Flame Detection Eye or PEEPs”

Mini Peep



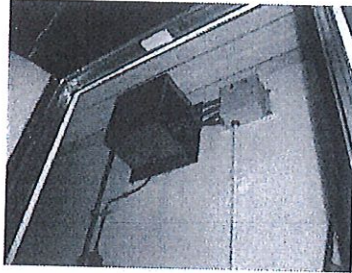
Mini Peep Location



Clean with a cotton swab & rubbing alcohol or alcohol wipe. These units are located in different locations based on the burner location. Each burner has two, one mounted high in the burner assembly that is stainless in color, and one lower next to the pilot that is a purple color. You must open the access door on the burner and it might require the use of a crescent wrench to remove the lower Mini Peep. When replacing, **DO NOT USE A WRENCH TO TIGHTEN! HAND TIGHT ONLY!**



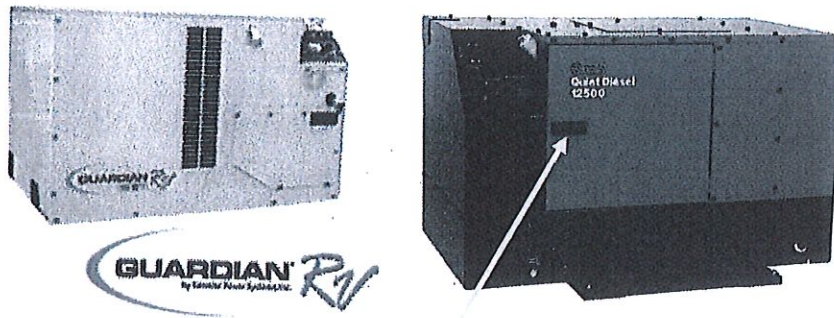
Some Flashover units may be located at the rear of the trainer in an exterior room (as shown below), or they can be located in the mechanical room. They need to be cleaned at the beginning of each training day.



## 7.2.1 Generator Maintenance

Fireblast utilizes several options for generators, a Guardian quiet running gas/diesel unit or an Onan Diesel unit based on the customers specifications. The Generac Gas unit requires during the start process to hold the start switch for a count of five (5) second before releasing the start button to energize the generator. The generator fluids should be checked at the beginning of each day's operation. Begin with the fuel; it is important to fill the fuel to allow full operation of the unit for a full day. If the generator is allowed to run out of fuel during operation of the unit, damage could occur to the PLC (computer) when supply power is lost. Only use the fuel type listed on the side of the trailer on the drivers side front of the trailer.

Each generator has a control panel as indicated by the red arrows below. Check the oil level by removing the oil dipstick that is provided, the oil level is determined by cleaning the dipstick, then placing the stick loosely into the fill hole, then removing and making note of the level on the stick. In either type of oil reservoir, **DO NOT OVER FILL!**



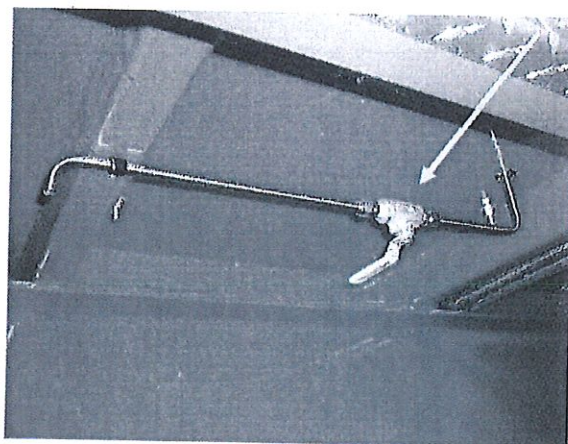
Check the coolant on either unit by looking at the reservoir and filling to the required level with 50/50 mix of water and anti freeze. Take the Hour meter reading on the unit and record it on your maintenance log sheet.



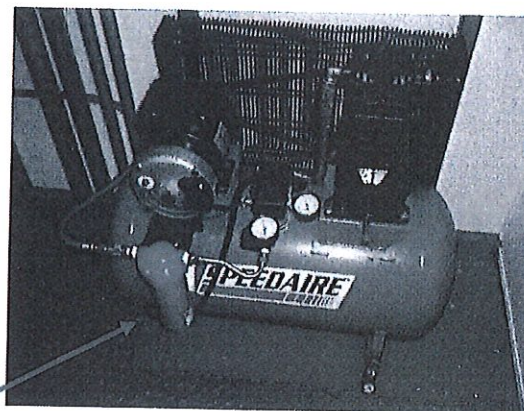
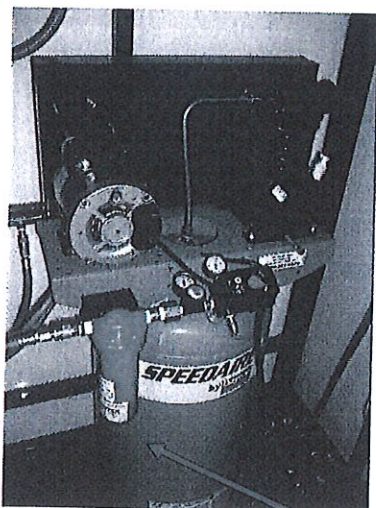
## 7.2.2 Air Compressor Maintenance

During the walk around in the morning, visually check to see that the compressor drain on the exterior front drivers side is closed. This is mounted next to the landing jack crank as shown below.

Each day at the end of the training class, the air compressor tank should be drained to remove any water that may be in the tank. To drain moisture, open the valve on the outside ¼ turn ball valve. Allow the air to empty from the tank. Leave the drain open when not in use.



Fireblast also uses several types of air compressors.

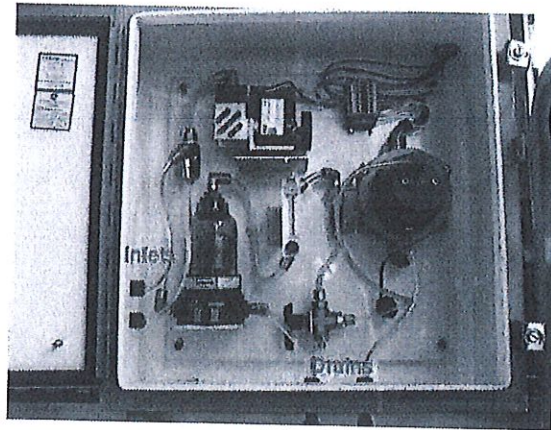


Drain the moisture traps daily. The moisture trap shown above right is a self bleeding type (under 20 psi) moisture trap. Drain the red moisture trap on the compressor daily until all liquid is drained.

Drain by pressing the valve located on the bottom of the trap to the side.

## 7.3 80 Hour Maintenance

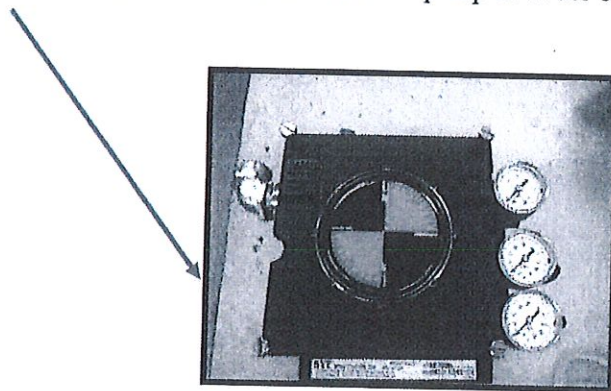
The gas detection system shall be checked every 80 hours of operation. Begin by performing start-up procedures and log in to the system. Utilize propane bottle to flow about five seconds of vapor under the gas pick-up tubes in the burn chamber. You should see the gas detection meter on the screen move up in gas percentage or go into the alarm mode. **The unit shall not be used until the gas detection system is operational.**



Perform a visual inspection of the system, including the moisture trap float bowl. If it hold standing water, it shall be drained.

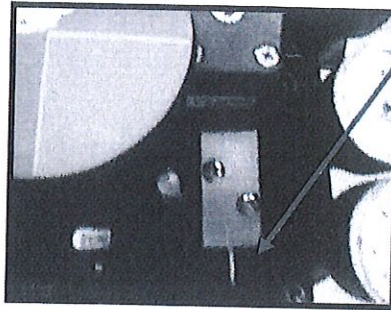
The Gas valve controls or "VRC" should be serviced every 80 hours of operation. Additional service should be performed prior to storage.

To begin inspection and or service, remove the top cap or cover by loosening the four screws.

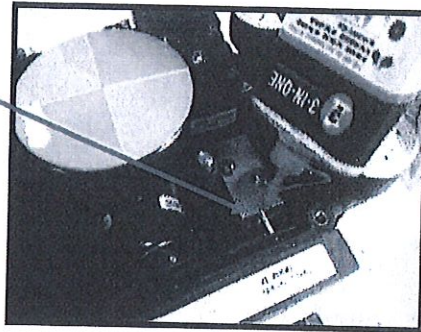




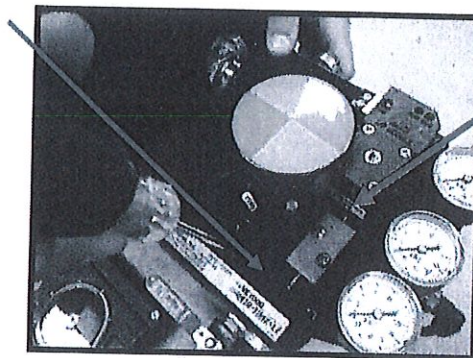
Visually inspect the metering block for signs of moisture or rust.



Lubricate the cylinder rod with “3 in 1 oil” found at your local hardware store with one drop of oil. Warning! Do not over lubricate the cylinder.

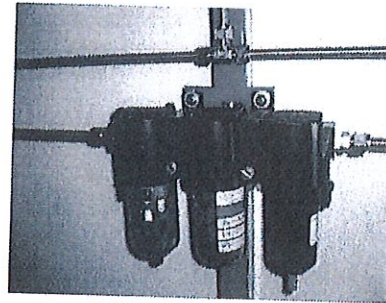


Operate the cylinder by placing a flat blade screwdriver between the valve case and the black beam. Rotate the screwdriver to move the rod about half of its length and add one drop of oil to the back of the shaft. Release the beam. **DO NOT FORCE** the rod! If for any reason the rod will not move with minimal pressure, **STOP!** Call the manufacturer.



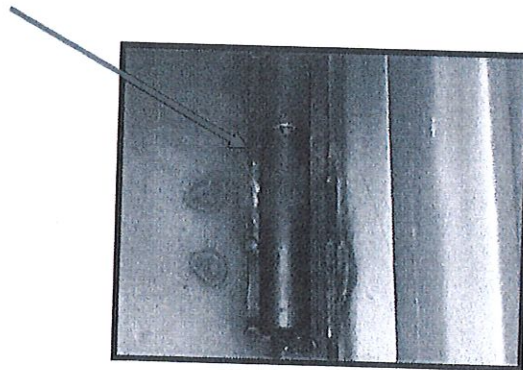
Replace the cover and repeat for each “VRC” in your system.

The Nitrogen system requires a visual inspection of the system every 80 hours. This inspection begins with the moisture trap mounted on the wall (below right), the bowl provides a color indicator to indicate when replacement is needed. (drain the pressure off the system prior to removal of cartridge). Replace with a new cartridge and drain the other traps.



The roof prop should be inspected for railing integrity, bolts secured, air lines for cracking, and joist hangers for damage.

Interior wall dividers should be lubricated. **DO NOT USE A LOW FLASH POINT LUBRICANT!** A recommended lubricant is "BreakFree/clp" that can be purchased through your local parts supplier. Use small amounts and open and close the walls to allow the lubricant to penetrate the hinge.



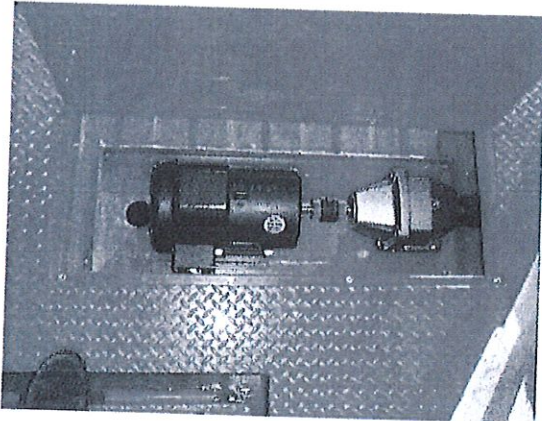
A lubrication point has been provided to allow lubricant to be inserted into the hinge assembly.

Visually inspect the condition of the interior walls looking for any breaching of the container, or extreme distortion indicating metal fatigue.

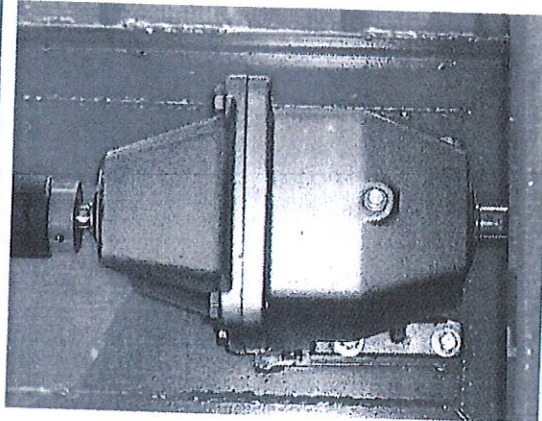


## 7.4 Two Story and Double Two Story Lift System

These units have a mechanized lift system that requires visual inspections monthly or every 80 hours of operation. Begin by locating the Drive motor and gear box by removing the inspection plate. Each room has a Drive Motor and Gear box.



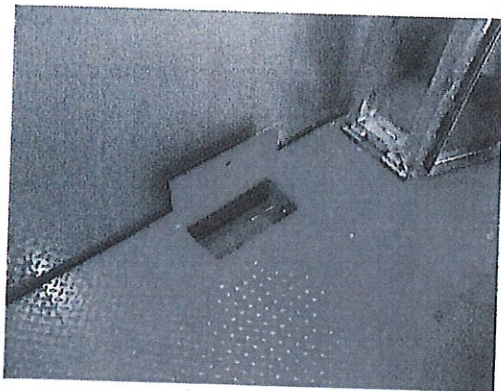
Drive Motor Inspection



Gear Box

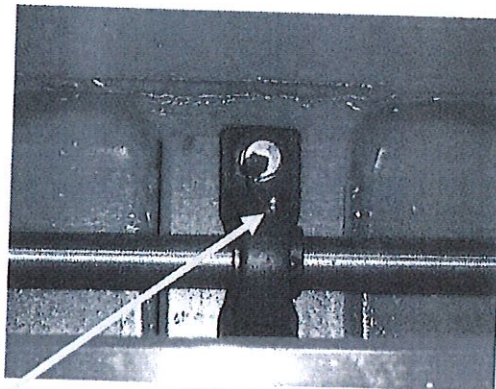
The gear box has a brass plug on the top of the unit and requires SAE 140 W gear oil. Inspect and fill as recommended by the manufacturer pamphlets. Transition boxes also require SAE 140 W gear oil.

This system incorporates the use of Pillow Blocks for reliability of the screw jacks. The Pillow Blocks will need lubrication monthly / 80 hours of operation by injecting lithium grease into the zerk fitting located on each Pillow Block.



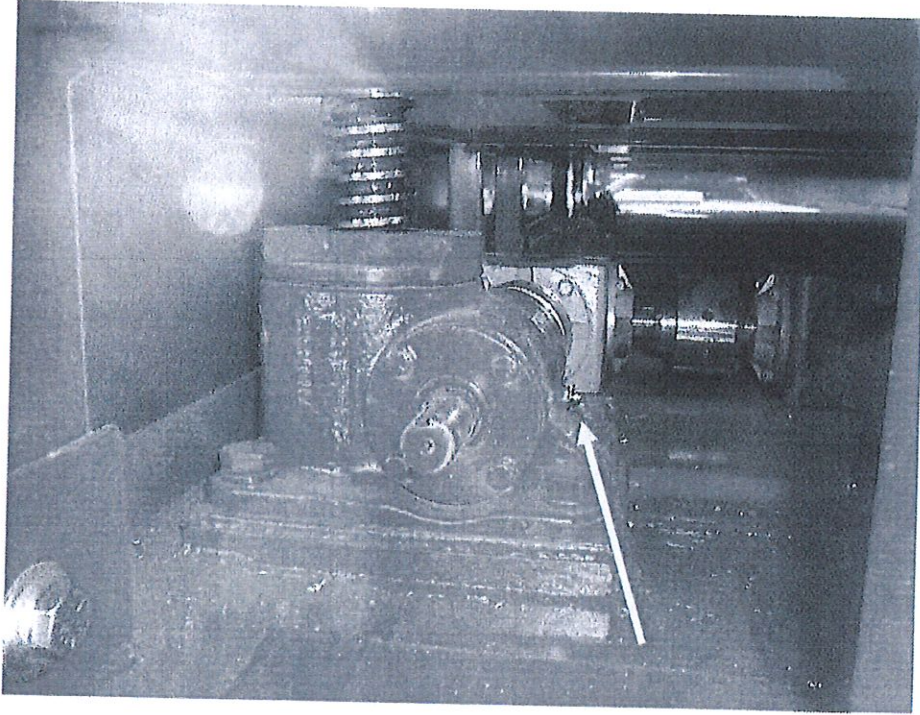
Access Plate

Lubricate with one pump of a grease gun.



Pillow Block

The Screw Jacks require a similar lubrication interval utilizing ALBIDA Grease (Shell Oil # 70311) LC EP #2 grease using a grease gun also as shown below.



The Transition gear boxes as shown in the picture above painted grey also require SAE 140 W gear oil.



*“Monthly/ 80 Hour” Maintenance Form*

Item	Action	YES	NO
<b>Flame Detection System</b>	Clean with cotton swab & rubbing alcohol		
<b>Generator</b>	Check Fluids		
<b>Air Compressor</b>	Check Fluids and Drain moisture traps		
<b>Gas Valve Controls “VRC”</b>	Open the cover Screw driver to operate the balance beam Lubricate with small amount of (3 in 1) oil Replace cover		
<b>Gas Sensor Visual</b>	Open cover and inspect fan operation Hydraulic level gauge @ .2 - .3 Moisture trap drain		
<b>Screw Jacks</b>	Inspect and lubricate via grease fitting		
<b>Gear Box</b>	Inspect oil level SAE 140 W Gear Oil		
<b>Transition Gear Box</b>	Inspect oil level SAE 140 W Gear Oil		
<b>Pillow Blocks</b>	Inspect and apply Lithium Grease via grease gun		
<b>Roof Prop</b>	Inspect Bolts and fasteners Airlines		
<b>Interior Wall Hinges</b>	Lubricate and operate		
<b>Interior Wall condition</b>	Inspect the walls for breaches in the interior skin or extreme distortion.		

Notes:

Fire Control Officer

Printed Name \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

## 7.5 User Storage

User storage should be performed anytime the unit will not be used in a 30-60 day period. User storage consists of performing a monthly inspection, plus turning off all fuels and draining or running dry. This includes the LPG props, Generator and smoke machine if applicable.

Return to service after storage should include the monthly checks, plus perform additional leak checks and torque checks of the trailer wheel lug nuts. This can be performed by a truck service company.

## 7.6 User annual maintenance

The annual service should begin by scheduling the manufacturer's annual maintenance, then providing the following service:

### Single Story Units

- Torque the trailer wheel lug nuts
- Inspect the trailer brakes (qualified mechanic only)
- Oil change on the Air Compressor and Generator

### Two Story Units

- Torque the trailer wheel lug nuts
- Inspect the trailer brakes (qualified mechanic only)
- Oil change on the Air Compressor and Generator
- Remove Winch and ship to Fireblast 451 Inc. for service

### Double Two Story Units

- Torque the trailer wheel lug nuts
- Inspect the trailer brakes (qualified mechanic only)
- Oil change on the Air Compressor and Generator
- Lubricate the Lift system gear boxes

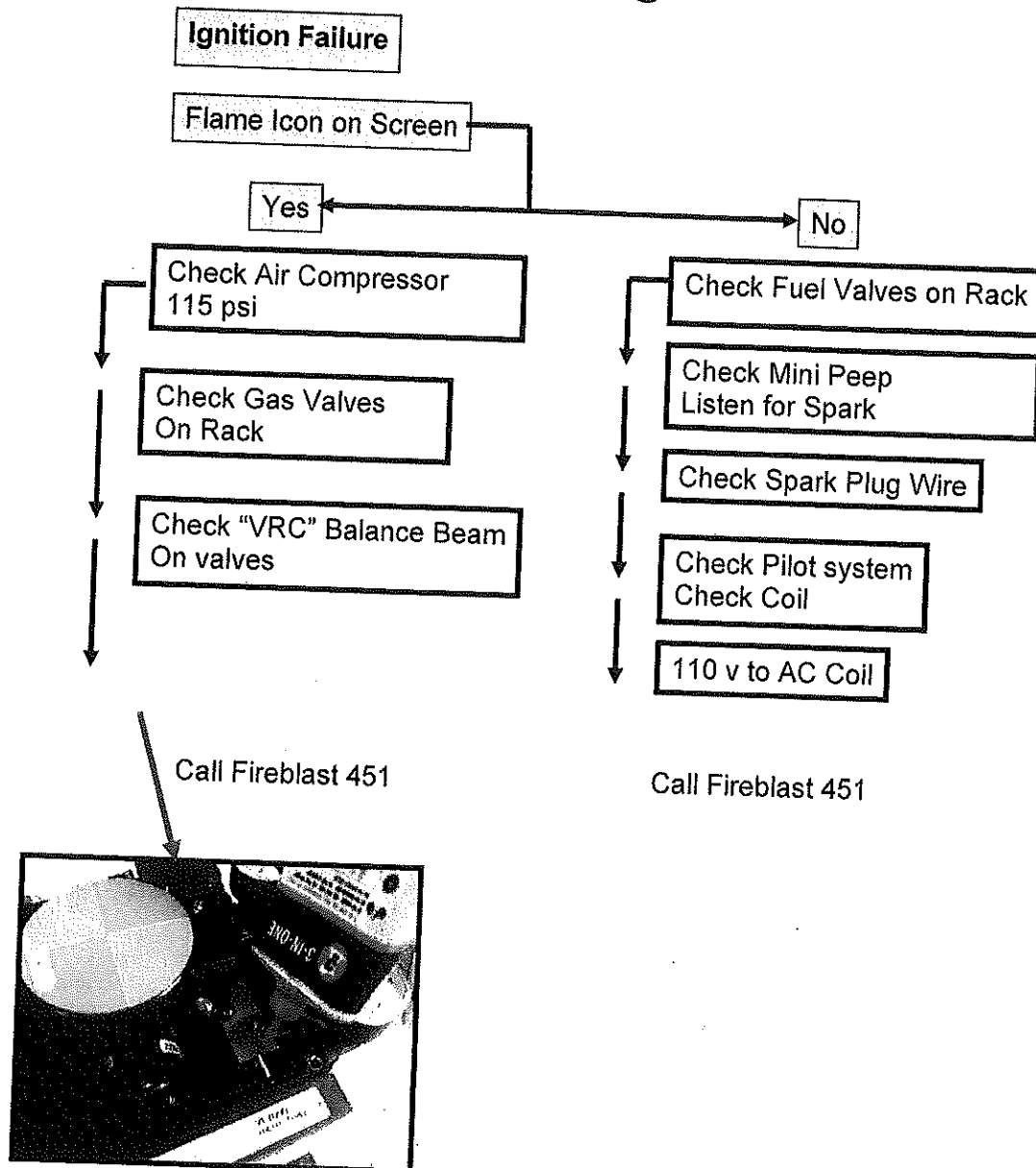
\*\* Manufactures maintenance contracts are available for the annual service that will include all maintenance items as described in this manual, plus gas detection calibration and cleaning of the burners.\*\*

For a service contract contact Fireblast 451 Inc. 800-716-1977

Calls received after the warranty has expired will be billable at our shop rates and travel expenses.



# Trouble Shooting Guide #2



## Trouble Shooting Guide #3

Live Fire Prop goes out prematurely prior to extinguishment

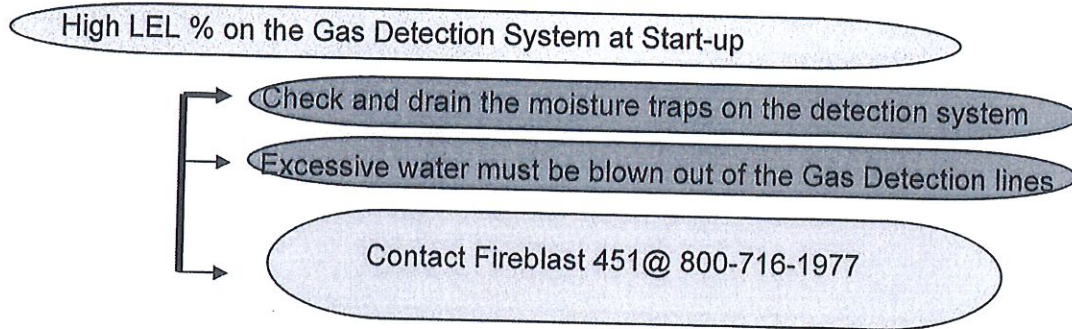
- Remove the Mini Peeper and clean the lens
- Check air fan for air flow to the prop
- Check the air compressor "operational"
- Check Fuel levels in the propane tanks
- Contact Fireblast 451@ 800-716-1977

## Trouble Shooting Guide #4

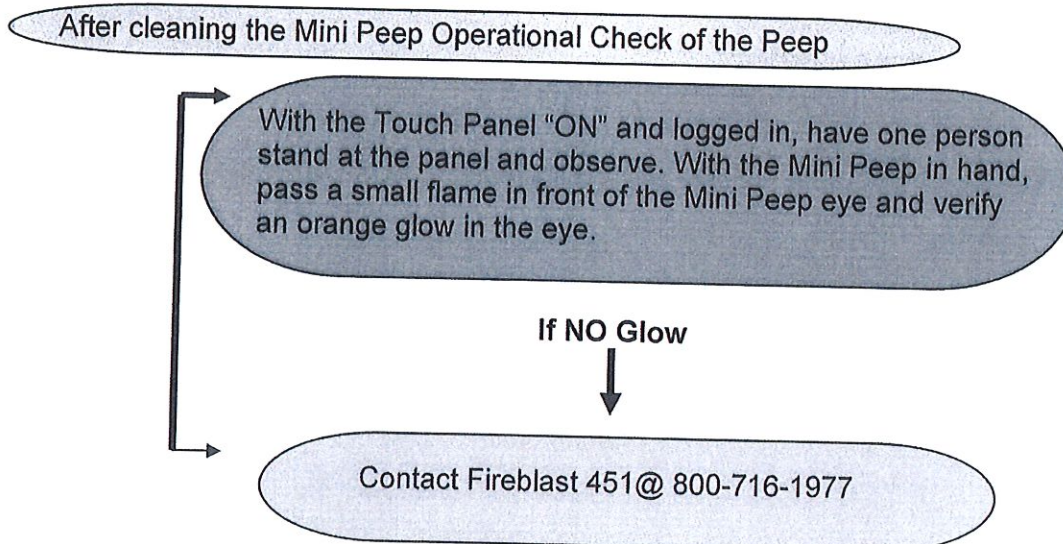
Flame Signal or indicator on Touch Panel no illuminating

- Perform trouble shooting guide #3
- Open the Main Panel in the generator room
- Reset the Honeywell units by pressing reset buttons
- Attempt to operate system again
- Contact Fireblast 451@ 800-716-1977

## Trouble Shooting Guide #5



## Trouble Shooting Guide #6





# Trouble Shooting Guide #7

Smoke Machine not operating

Check machine power to "ON"  
Nitrogen operated Machines check power switch and pressure switch is in the "ON" position

Not Operational

Turn smoke Machine to "OFF"

Check Fluid levels

On Nitrogen Gas models, check the gas level and regulator setting. (50) PSI

Not Operational

Contact MDG @ 800-663-3020

Contact Fireblast 451 @ 800-716-1977