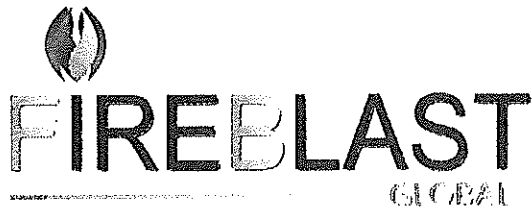


Falcon EX

Exterior Live Fire Training Simulators Operation and Maintenance Manual



ADVANCED FIRE TRAINING SIMULATORS
545 Monica Circle Corona, California, 92880
951 277-8319 / Fax 951 279-1705



Owner/Student Manual

Operations Manual

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Introduction

Thank you for purchasing a Fireblast Global, Inc. Advanced Fire Training System. This is the operational manual for your Live Fire Exterior Gas Prop Trainer, and is supplied to you for your reference and convenience. This manual provides the operator with the necessary information for the safe operation and routine maintenance of the training unit. Additionally this document provides descriptive information of the operational components and safety systems and features. Safety is paramount to Fireblast; therefore, we ask that all operators become familiar with the information provided in this document.

Our commitment at Fireblast Global, 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 Global, Inc. offers a full line of fire training systems including interior and exterior gas-fired props, portable units (both Class A and Class B), multi-story training facilities, Class A flashover units, confidence maze trainers, USAR trainers, and Aviation trainers (including helicopters and aircraft). All units 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 Global, Inc utilizes the latest technology in live fire simulators with programmable logic controllers (PLC), ultra violet flame detection, wireless pendant controllers 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 Global, 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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General Information

1.1 Definitions

Throughout the operational training class many new terms will be utilized. It is important to become familiar with these new terms and their relation to your training system. When referencing question about your training unit, the correct terminology when speaking with Fireblast representatives will provide them with the ability to quickly and accurately serve you. An understanding of the terminology will also help in the evaluation of service and maintenance reports. Below is a list of commonly utilized definition that can be used for reference

Air Exchange – Also referred to as Air changes per hour (ACH), is a measure of how many times the air within a defined space (a burn room) is replaced. An air change does not represent a complete change of all air in the enclosure or structure unless it can be considered plug flow.

Fire Control Officer (FCO) - the individual responsible for the set-up and operation of the operational control systems of all live fire training burns.

Falcon IG P – (Commonly referred to as the igniter box) the operational gas valves, pilot and ignition equipment for the main fire prop primarily utilized in the Falcon Exterior Series.

Falcon 10 – (Commonly referred to as the Podium) is a portable control unit that requires a 110V power supply. The unit is equipped with a PLC and a burner management system. Model can be designed to monitor one to four pilot and main burner systems.

Falcon 24 Pan CH – (Commonly referred to as the Pan) is a 24 sq ft stainless steel burn pan with an integrated burn bar system. The CH Pan is utilized in conjunction with the Falcon Car and Helicopter EX.

Falcon 24 Pan FL – (Commonly referred to as the Pan) is a 24 sq ft stainless steel burn pan with an integrated burn bar system.

Flashover Ignition Box (FLI) - The operational gas valves, pilot and ignition equipment for the flashover primarily utilized in the Raven Interior Series. The FLI can also be utilized in a Hawk Interior Series installation where limited equipment space is available.

Gas Detection – A calibrated device that utilizes infrared technology too measure minute particles of raw or unburned gas within a closed compartment.

Lead Instructor (LI) - (The individual commonly referred to as the training instructor). The LI is the individual who is ultimately responsible for the operation of the training equipment and the students in the training area.

Lower Explosion Limits (LEL) - *The lowest concentration (percentage) of a gas or a vapor in air capable of producing a flash of fire in presence of an ignition source (arc, flame, heat).*

Mini Peeper – An ultraviolet flame monitoring device utilized to measure the quality of flame propagation at the pilot and main burner.

Mobile Touch Panel (MTP) – A mobile tethered device with a full function color display that allows the operator to view operational functions of the burn system while inside the live fire training environment.

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1.3 Fire Control Officer

A Fire Control Officer is an individual who has attended, signed the "Addendum to Operational Instruction of the Live Fire Training System" and successfully completed the operational instruction class. By signing the "Addendum to Operational Instruction of the Live Fire Training System" the FCO acknowledge that is understood and agreed that the individually assume any and all risk of damage, loss or permanent injury, including death, to themselves 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 Fire Control Officer is the individual responsible for the safe operation and set up of the Advanced Live Fire Training Simulator. His or her responsibilities include verifying that the system functions correctly, maintenance was performed and that all safety checks were verified and documented prior to the initiation of training exercises with student.

If any person, other than the one who has successfully completed the operational training course described above operates the training unit, such use shall void any and all warranties, and release liability of Fireblast 451, Inc. from any and all related injuries and or death from any accidents.

It is recommended that each FCO have a minimum of 10 hours of hands on operational experience and a complete understanding of operational function of each training devices characteristics prior to having student involvement.

Additional instruction required by your agency for additional personnel can be obtained directly from Fireblast 451, Inc. Contact our Customer Service Coordinator (CSC) for more information.

1.4 Safety Officer

The Safety Officer is not required to attend the Operational instruction course provided by Fireblast 451 Inc. The Safety Officer shall be selected by the training staff. The individual should have a high degree of live fire training skills and scene safety experience. The SO has ultimate control of the training exercise and the ability to shut down the training class if an unsafe condition is apparent. The department rank structure shall not supersede the SO regardless of rank.

1.5 Lead Instructor

The Lead Instructor is not required to attend the Operational instruction course provided by Fireblast 451 Inc. The Lead Instructor shall be selected by the training staff. The individual should have a high degree of live fire training skills and interior attack training experience. The individual is responsible for training the students in compliance with NFPA 1403

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10. If the hazard cannot be eliminated, discontinue the training exercise until all repairs can be made to provide for safe training.
11. Insure that all students have been properly trained and meet prerequisites as specified in NFPA 1001 in regards to live fire training.
12. 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 NFPA 1403 2012 edition
13. Insure all students have been properly trained in the use of their PPE including self contained breathing apparatus (SCBA) as specified in NFPA 1404.
14. Insure that all protective clothing including SCBA,s are worn during and after the training exercise.
15. Confirm that the water is the only extinguishing materials utilized in the training environment. Other materials may cause premature damage to the system. Note that class A foam may be utilized however foams may cause the environment to pose potential risk to students due to slipping on contaminated surfaces.

We strongly recommend that each instructors being certified receive a class on LPG or Natural Gas properties and characteristics (based on media utilized at your training facility) a review of indirect and direct fire attack methods, and training in flashover recognition and prevention prior to utilizing the gas fired training system with students.

Any person not qualified to operate the system does so at his or her own risk. Individuals operating the system accept full responsibility for any injury and 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.

Agencies not following the above described safety responsibilities, or substituting personnel that do not meet the qualifications, risk injury and or death to the students, other instructors and persons in proximity of the facility as well as damage to the system, unit or training facility.

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2.3 Safety Warnings

1. To prevent the risk of electric shock do not open the electrical panel. Only qualified electrical service personnel should access electrical panels. Power should be removed from the system prior to panel access.
2. Do not disconnect the power supply to the panel with power being supplied to the panel. Electric shock may occur. Removing power from the control unit without the proper shut down procedure may cause damage to the operating system
3. 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.
4. Your system 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.
5. 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. LPG released from the tank is flammable and can be explosive.
6. Do not store or use gasoline or other flammable vapors or liquids in the vicinity of the gas operated burn props.
7. If the smell gas is present:
 - a. Shut off the supply.
 - b. Clear the training area until the smell of gas dissipates.
 - c. Notify the manufacturer or authorized repair facility.
8. Never operate a unit that has a gas leak.

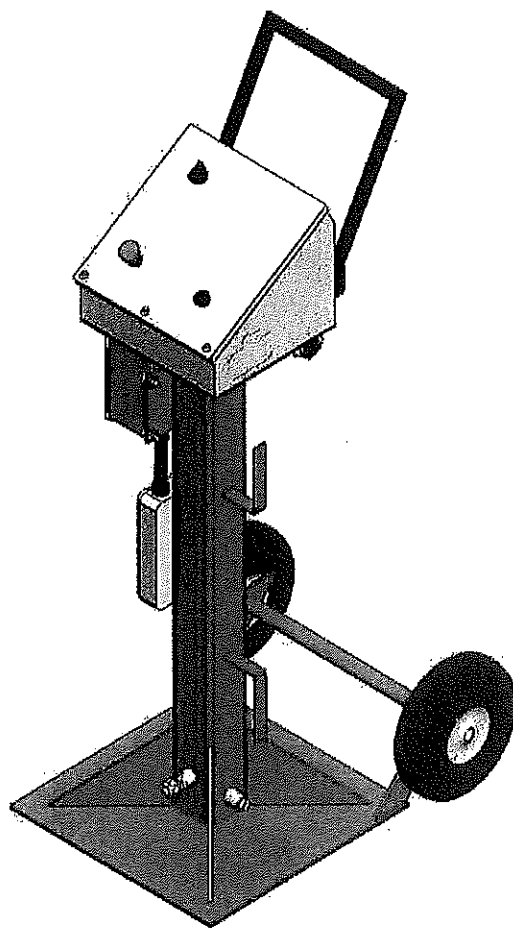
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System Overview

3.1 Operational Equipment

3.1.1 Falcon 10 Controllers– the Falcon 10 Controller Series offers a variety of models each designed as a master control unit for controlling a single burner or multi burner system. The Falcon controller receives information from the burner management sensor and provides the ability to control the burner conditions and realistic training scenarios. The Falcon controller includes a PLC that is programmed to operate the Falcon igniter in a failsafe mode. (Detail 3.1 & 3. 2)



Detail 3.1 – Falcon 10 S Controller

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3.1.2 Verify the controller supplied with your system, and its capabilities before operating the system.

3.1.3 Handheld Operator –Some units include a handheld device that allows the operator to move from the Falcon controller during the training exercise while still controlling the fire scenario.

Fireblast utilizes Wireless Pendant for the handheld device in the Falcon system. It is important to be familiar with the device provided in your training environment. It is required that you read the provided information and on the applicable device and understand the functions and safety system features provided for each of your controllers.

3.1.4 Fire Prop – The prop is a steel structure constructed of corrosion resist steel that resembles a combustible found in commercial and industrial facilities. Some props may be equipped with a burner management system and a pilot ignition system with main burner. Some act as merely a facade that a burner can be integrated into. Props may represent a Car, Helicopter, Aircraft, LPG vessel, Split flange, Christmas tree, Gas meter, Flammable spill, BBQ etc.

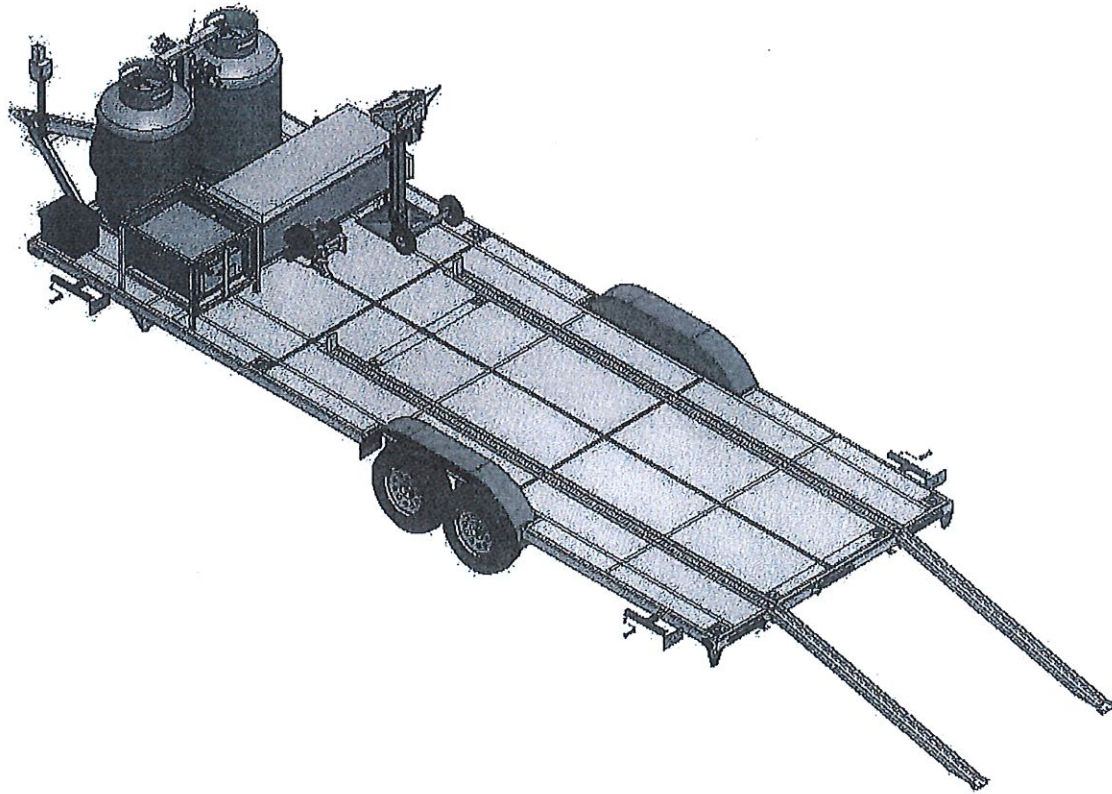
3.1.5 Falcon IG P (Falcon Igniter) The Falcon ignition system uses a solid state igniter with a spark plug for ignition. Utilizing ultraviolet sensor technology, the flame propagation is monitor too manufactures and industry standards. Each Falcon IG P is equipped with a mini peeper that continuously monitors the pilot and flame production of the pilot and main burner. The devices are interlock in a fail safe mode in the event that flame production is below a safe level for operation. (Detail 3.3)

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3.1.6 Transporter – Your equipment may include a transport trailer. The Transporter is a trailer that has been specifically designed to transport a Falcon prop or props including all of the operating equipment and fuel source. The Transporter is available in open deck or enclosed versions that range from 16ft to 30 ft in length based on the equipment included. The transporter incorporates 2- 420 lbs. LPG cylinders, offloading ramp, and hold down equipment for the Falcon IG P, Falcon 24 Pan FL and the Falcon 10 Controller. The unit includes storage of the hoses, cables, stabilizer jacks and the necessary equipment to provide safe training.

(Detail 3.4 & 3.5)



Detail 3.4 Falcon Transporter 24 EXM

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3.2 Safety Devices

3.2.1 The standard safety systems have multiple levels of protection. These levels are separated by manual and automatic control. Manual controls require the operator to initiate or activate the device in order for the safety device to function. Although the devices are manually controlled, they are interlocked with the computer and will only allow operation under safe conditions. Manually controlled systems include the enable switch on the controller and the safety activation device (E-Stop)

3.2.2 The Automatic controlled devices are systems that are interlocked to the fuel delivery system that monitor conditions and shut down operation. These systems include burner management, and combustion air flow interference. Device descriptions include:

3.2.3 Enable Switch – Each Falcon controller device is equipped with an Enable Switch, commonly referred to as the dead man button. Activation of the enable switch is required for operation. Releasing of the switch at anytime during a training exercise will initiate a failsafe shut down procedure.

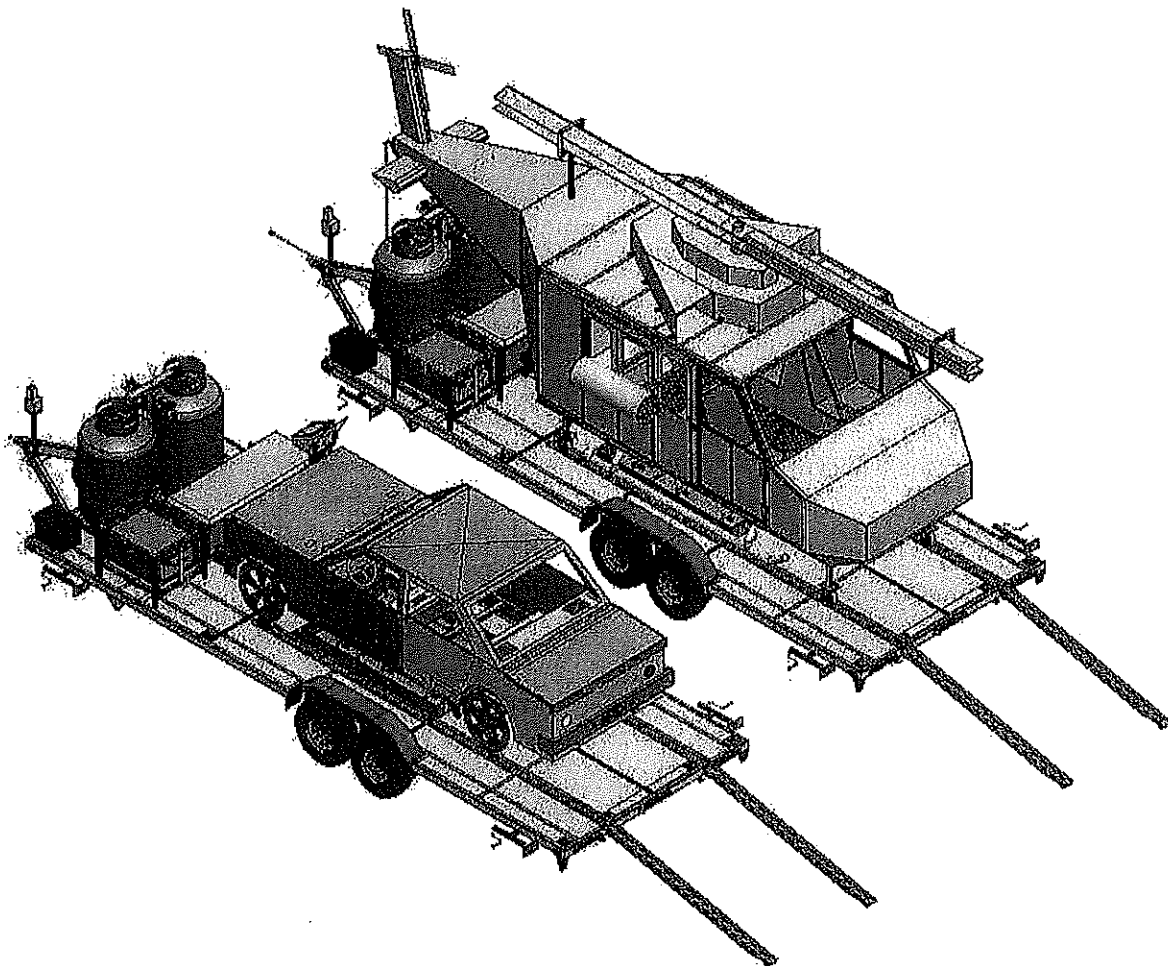
3.2.4 Safety Activation Device – There is a minimum of one safety activation devices, most commonly referred to as e-stop, location for each prop. The device is located on the Falcon controller and on the wireless device.

3.2.5 Burner Management – Burner management is a series of components that provide information for the quality of flame production being produced at the main burner. The quality of flame propagation is dependent on three elements, fuel, air and ignition. These elements are achieved utilizing a solid state ignition and spark plug, a combustion blower and the chosen fuel for the facility. The UV mini peeper discussed previously verifies the combination of these key elements. The combustion blower provides the correct amount of air to the burners to assist in adequate combustion while allowing them to burn with a Class "A" fire appearance.

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Falcon Transporter 24 FLM

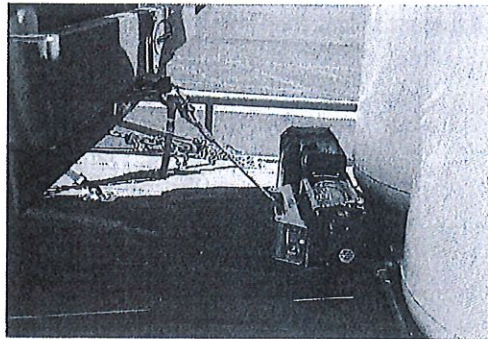


Detail 4.1 - Falcon Transporter 20 FLM Shown

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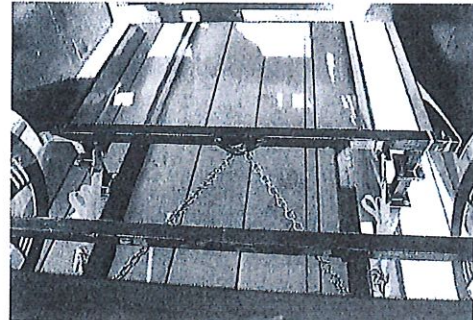
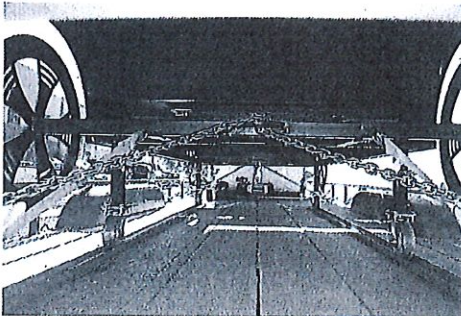
4.3.4 - Verify that the winch cable is attached to the Prop and that tension is applied.



Detail 4.4

Note: Do not remove the binders without winch tension. Doing so may allow the prop to self unload causing injury.

4.3.5 - Release the chain binders and or straps from the Prop. *Note the position of the chain binders for reloading.



Detail 4.5

4.3.6 - Remove the winch control unit from the storage compartment and attach it the winch.

4.3.7 - Remove the Prop using the winch for control. Manual assistance may be required to move the prop toward the offloading ramps while the winch operator releases the spool out on the winch controller.

4.3.8 - Once the Prop is free from the transporter, disconnect the winch and leave in position for reloading.

4.3.9 - Remove the caster safety swivel pins so the Prop casters can rotate.

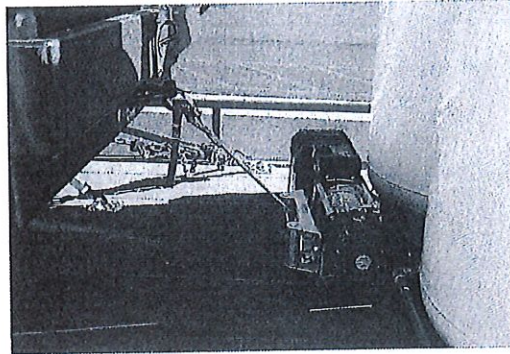
4.3.10 - Move the Prop into position for training. The Prop should be positioned downwind and downhill if possible.

4.3.11 - Remove and install 4 wheel chocks around casters of Prop.

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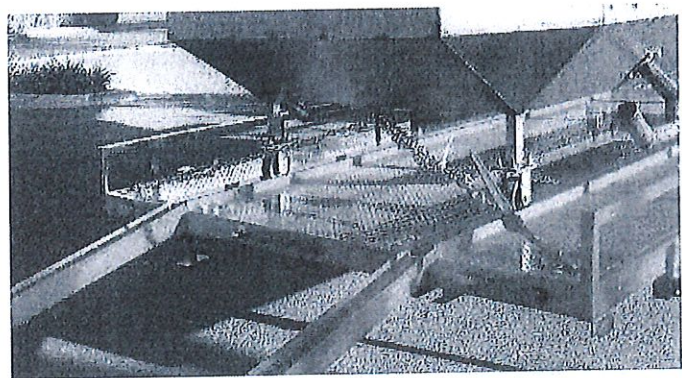
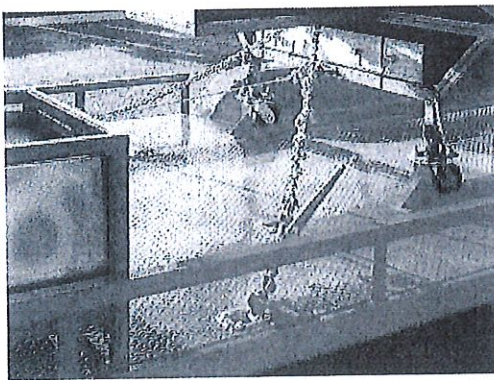
4.4.4 - Verify that the winch cable is attached to the Prop and that tension is applied.



Detail 4.8

Note: Do not remove the binders without winch tension. Doing so may allow the prop to self unload causing injury.

4.4.5 - Release the chain binders and or straps from the Prop. *Note the position of the chain binders for reloading.



Detail 4.9

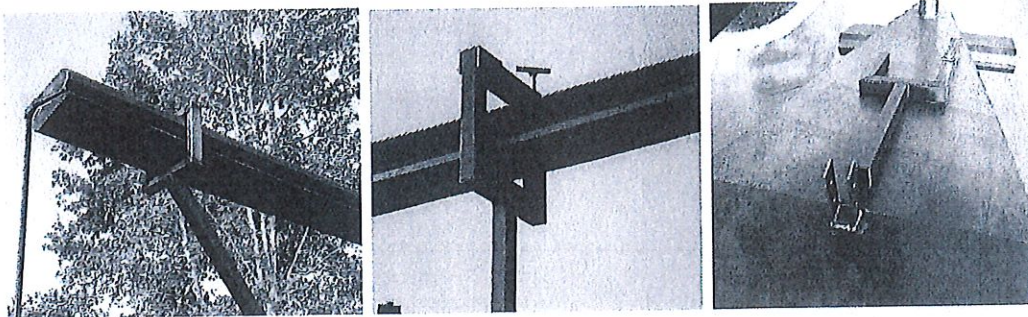
4.4.6 - Remove the winch control unit from the storage compartment and attach it the winch.

4.4.7 - Remove the Prop using the winch for control. Manual assistance may be required to move the prop toward the offloading ramps while the winch operator releases the spool out on the winch controller.

4.4.8 - Once the Prop is free from the transporter, disconnect the winch and leave in position for reloading.

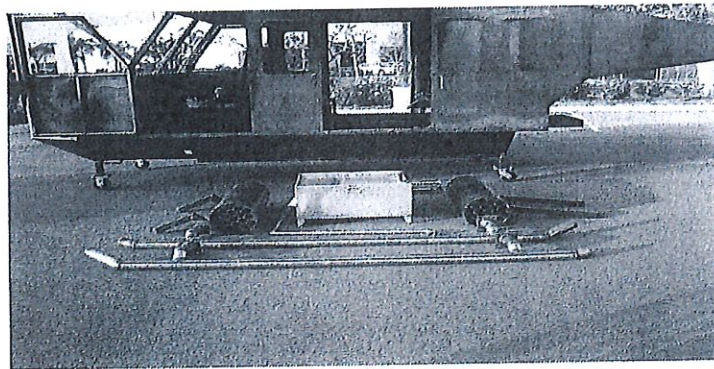
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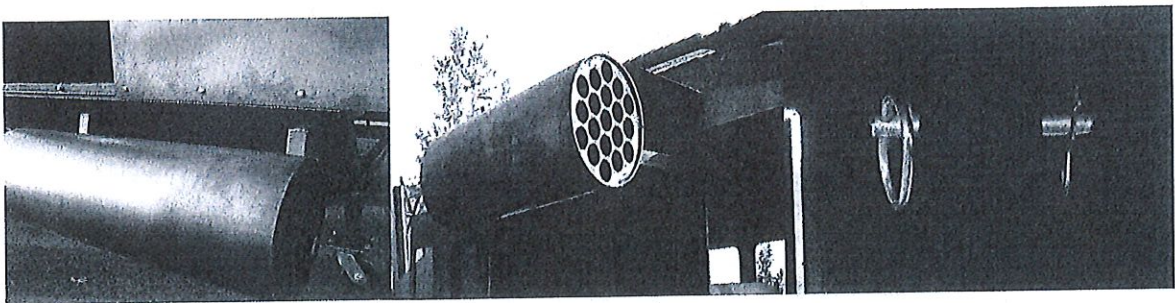
Detail 4.12

4.4.13 – Remove the accessories options from inside the Prop and place near the exterior of the unit.



Detail 4.13

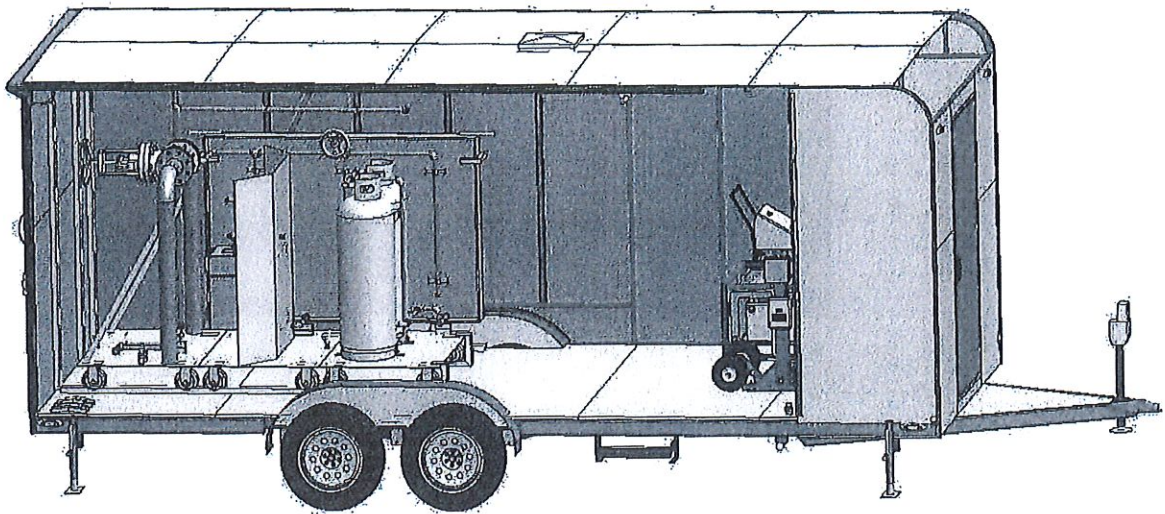
4.4.14 – Install skids and rocket props on Helicopter Prop in specified locations utilizing safety pin.. See Overview drawing designations.



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Falcon Transporter ECM



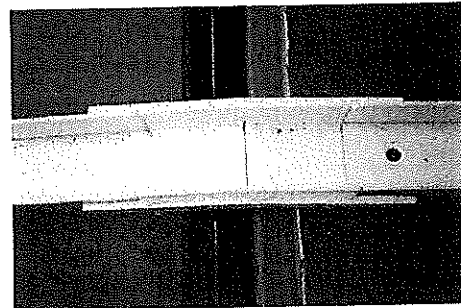
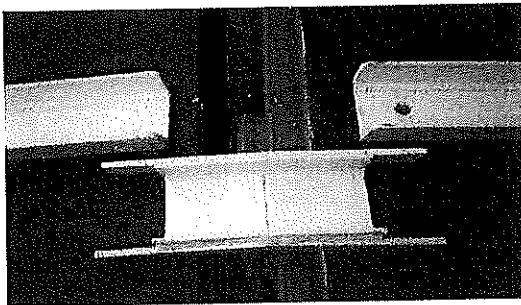
Detail 4.17 - Falcon Transporter 20 ECM Shown

*ECM Enclosed models also available in 16ft, 24ft, and 28ft.

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4.5.3 – Unlock and open the rear ramp door and install the door track spacers.



Detail 4.20

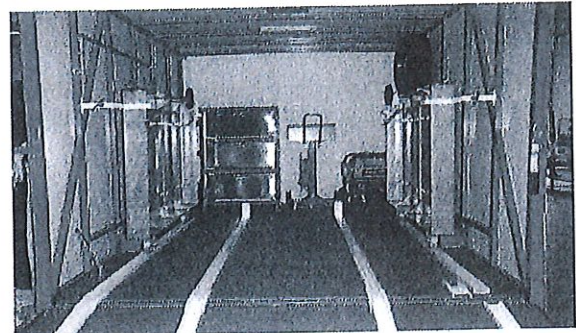
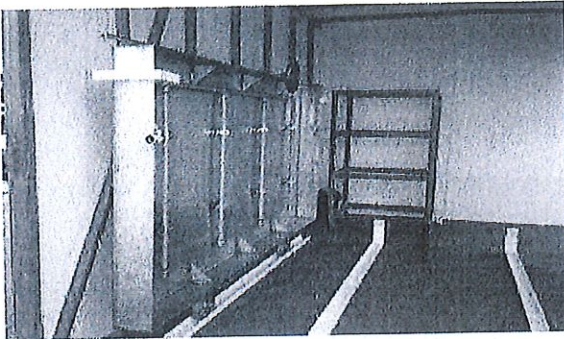
4.5.4 – Prop hold downs should be individually removed when the props are ready to remove from the transporter.

WARNING: Do not remove prop hold downs on unattended props. Props could self unload and cause serious injury.

4.5.5 – Release the Y-Handle for the rear prop in the center floor tracks. Utilizing a minimum of two people, manually roll the prop down the ramp door. *Note the position of the Y-Handles for reloading.

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Detail 4.22

4.5.10 - Once the Prop is free from the transporter, Move the Prop into position for training. The Prop should be positioned down wind and downhill if possible from the transporter.

4.5.11 – Repeat step 4.3.9 if multiple wall mount props are included with the training unit.

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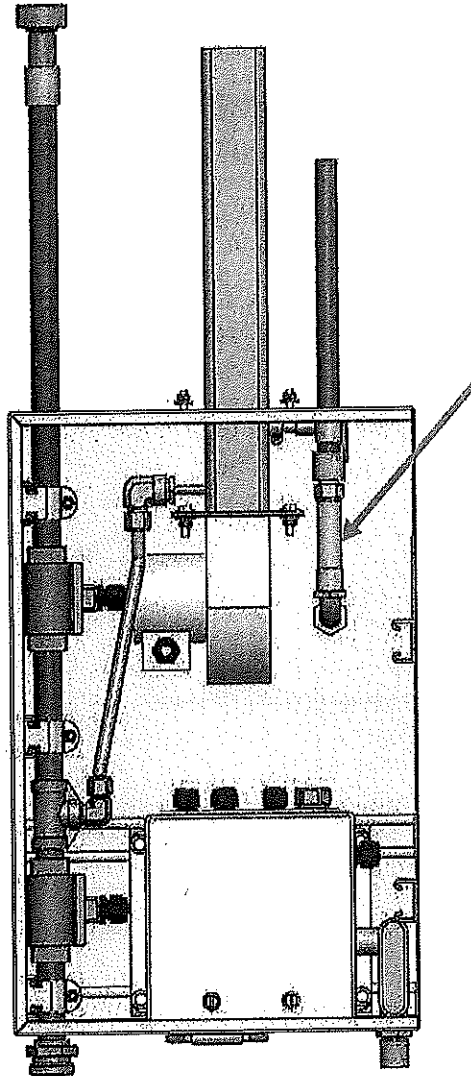
4.6.5 – Remove the heat shield box(s) and place near the Falcon Igniter.

4.6.6 - Remove the gas hose(s) and 10 pin electrical cord(s) from the storage compartment and place them near the Falcon Igniter.

4.6.7 If multiple Falcon Igniter are included repeat steps 4.6.3 – 4.6.6 at additional prop locations.

5.2.5 – Turn the ON/OFF switch to the ON position..

5.2.6 - Open the cover on the Falcon Igniter box. (Detail 5.1)



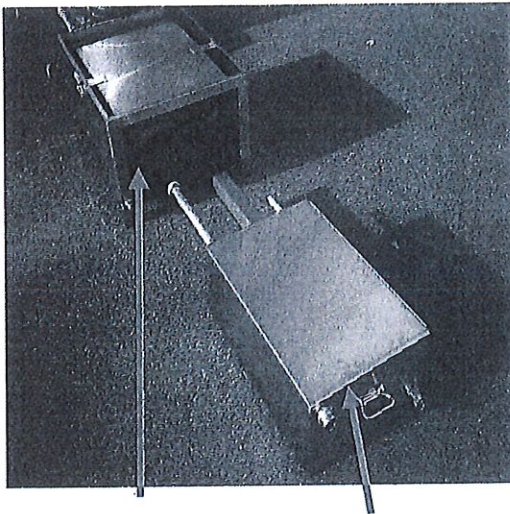
Detail 5.1 Falcon IG P (Igniter box)

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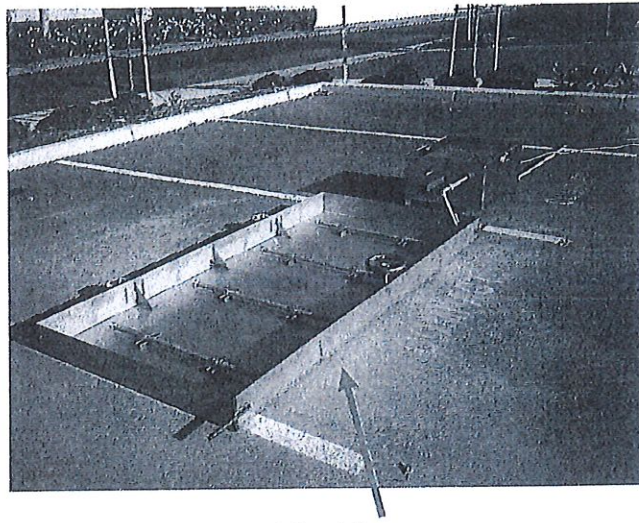
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5.2.16 – Position the Igniter away from students and instructors and test fire unit. Press the ignite button and light the prop. Release the button upon ignition, verifying that the spark and solid state igniter are operational.

5.2.17 - Place the Falcon Igniter box into the Heat shield and place in position with the appliance to be operated.
(See Details 5.3, 5.4, 5.5, 5.6, and 5.7)



Heat Shield /Igniter box

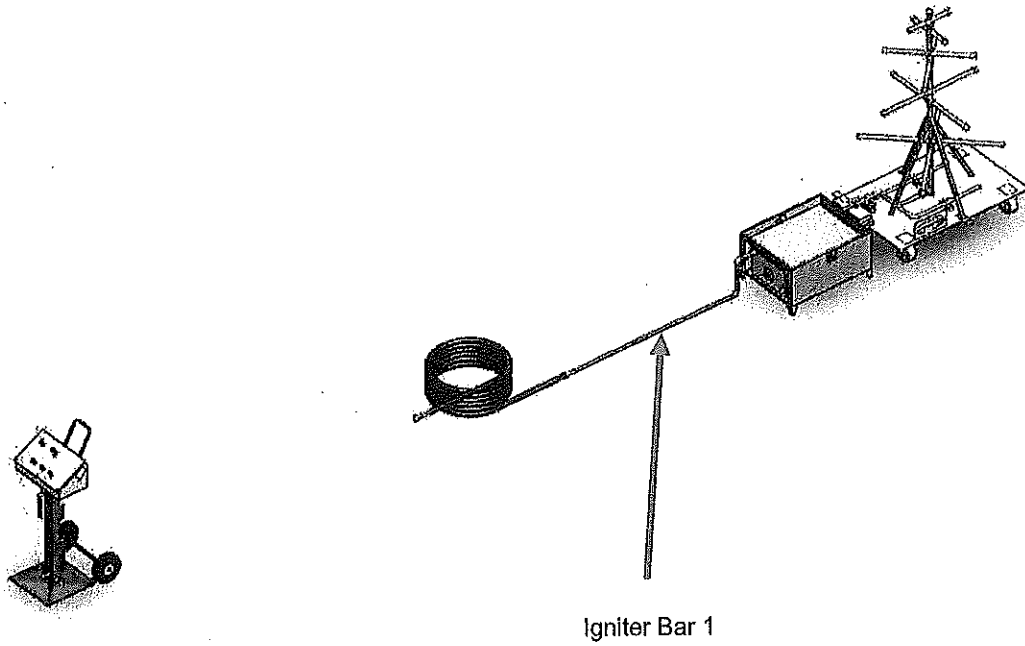


Liquid pan

Detail 5.3 - Falcon IG Layout

5.2.18 – Verify that the drain plug is installed in the Heat Shield and fill the outer perimeter with water

5.2.19 – Conduct the student briefing per NFPA 1403 prior to training.

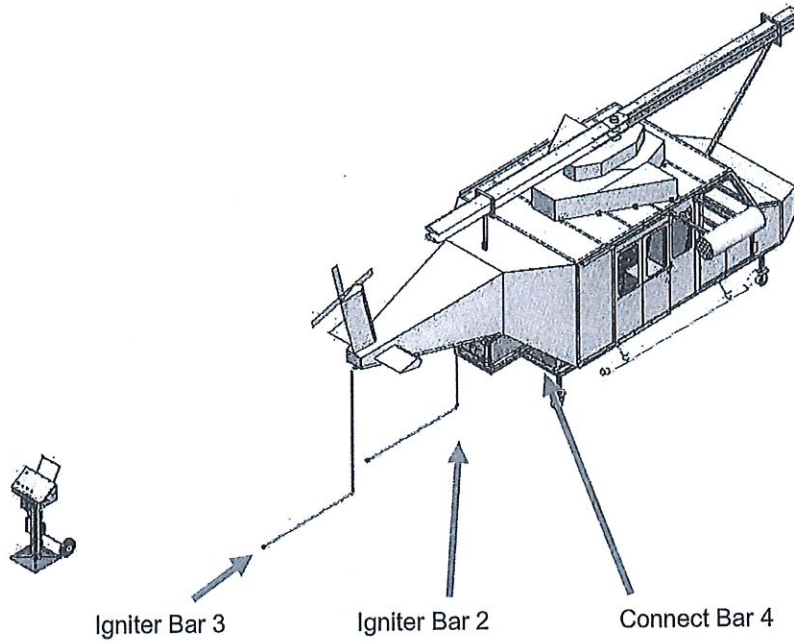


Detail 5.6 – Falcon Xmas Tree EX Layout

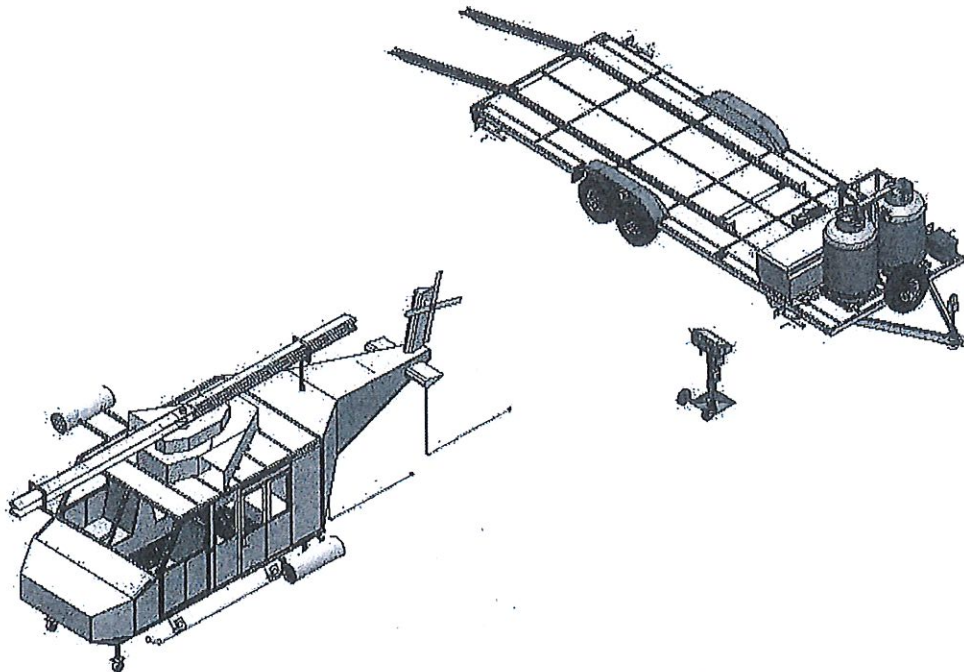
Note that Fireblast has a variety of props available in the Falcon EX Series. The details above show typical layout configurations for most props. Not all props are displayed in this manual.

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Detail 5.9 – Falcon Helicopter Layout



Detail 5.10 – Portable Falcon Helicopter Layout

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5. If the power to the system is removed, the operator should turn off the transmitter power immediately until the power to the Fireblast system is restored.
6. If the burner fails to respond properly to operator's command the operator should stop operation, turn the transmitter power off, and then report the condition to the administrator.
7. The transmitter power should be turned off after each use. If the transmitter handset is not in use always turn the power off and store it in a safe or designated location. Never leave the transmitter handset unattended.
8. Make sure the system is not set to the same channel as any other systems in use within a distance of 300 meters (900 feet).
9. Never operate a burner with two transmitter handsets at the same time.

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Forms

7.1 Daily Safety Log / Startup Check Sheet

This form shall be completed by FCO for each training session/day. It is to be left in this log book. Please refer to check sheet for startup procedures.

Date:	Checklist Complete? (Yes/No)
Agency:	
Class Title or Objective:	
Start Time:	End Time:
Start Temp (Outside)	End Temp (Outside)
Safety Checks (Yes No)	Door Unlocked (Yes No)
Burn Area Inspected (Yes No)	Time Log:
Total # of Evolutions	Total # of Students
FCO	Instructor
Instructor	Instructor
Instructor	Instructor

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Attach the other end of the LPG hose to the Falcon IG utilizing the included ground bar #1. Note that the fittings on the LPG hose should be hand tight.	
Turn on the LPG supply at the tank and verify that no leaks exist in the supply line piping.	
Verify the training area is clear and test the props.	
Conduct student Briefing prior to training	
Shut Down Procedures	
Turn off both of the LPG source.	
Ignite one prop until all the LPG is out of the hose	
Turn off the key, unplug the power cord and wind it up on the podium's cord hanger	
Disconnect the hose at the LPG source and igniter box, wind up hose and secure in storage area	
Disconnect 10 pin connection cords at the Falcon Controller and Falcon IG and secure in storage area.	
Drain the water from the heat shields and props, make sure to put the plug back in the drain	
Remove the igniter bar(s) and secure in storage	
Secure the Heat Shields in storage area	
Secure the Falcon Controller in storage area	
Document and deficiencies with the equipment to the AHJ	
Complete Daily Safety Log / Startup Check Sheet	

Objectives/Evolutions (brief):

Problems/Comments

Signature:

Date:

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Clean and test Mini Peepers inside Falcon IG box.	
Install Falcon IG inner box into heat shield and attach to prop	
Install drain plug in heat shield and fill prop (If applicable) and heat shield with water.	
Remove the hose from the transporter and attach to the LPG discharge located on the front right side of the transporter. Verify that the ¼ turn ball valve is in the closed position.	
Attach the other end of the LPG hose to the Falcon IG utilizing the included ground bar #1. Note that the fittings on the LPG hose should be hand tight.	
Turn on both LPG 420 lb cylinders and verify that no leaks exist in the supply line piping.	
Turn on the LPG ¼ turn ball valve at the transporter and verify that no leaks exist in the supply line connections.	
Verify the training area is clear and test the props.	
Conduct student Briefing prior to training	
Shut Down Procedures	
Turn off both of the LPG 420 lb cylinders.	
Ignite one prop until all the LPG is out of the hose	
Turn off the key, unplug the power cord and wind it up on the podium's cord hanger	
Turn ¼ turn ball valve to the closed position, disconnect the hose at the trailer and igniter box, wind up hose and hang on hose hanger in trailer	
Disconnect 10 pin connection cords at the Falcon Controller and Falcon IG and secure on hanger in transporter.	
Drain the water from the heat shields and props, make sure to put the plug back in the drain	
Remove the igniter bar(s) and secure on trailer	
Place the Heat Shields in the rack first then slide the Igniter boxes into them, put the safety bar in place and anchor with the tie downs	
Wheel the podium in place and use the T-Handles to secure it in place	

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7.4 Check List – Falcon EX including Transporter ECM

Date: _____ Fire Control Officer: _____

Task Information (To be created by AHJ)	Yes/No
Fill out Daily Safety Log / Startup Check Sheet	
Note: All equipment should be visually inspected for any defects prior to turning on the gas supply system (place any damaged equipment out of service and notify the AHJ of the damage prior to training. If the damage is severe enough to impact the safety of any participant training should be rescheduled.)	
Locate a site with enough space for the 100 foot safety area sloping away from transporter.	
Locate the transporter in its final training location.	
Verify that the LPG tank levels are full or provide enough fuel for the training exercise.	
Unlock and open the rear ramp door.	
Insert the door track spacers	
Remove the side stabilizing jacks and install on the trailer. Note that the front of the trailer should be slightly elevated to assist in off loading of the props.	
Remove Y-Handle for the rear center prop. Using two people remove the prop from the transporter and locate in its final training area.	
Install wheel chocks to casters to avoid the prop being moved during training operations.	
Remove additional floor mounted props as the first prop	
Remove the T-Handle from the wall mounted pan prop. Using two people remove the prop from the transporter and locate in its final training area.	
Remove the T-Handles from the Falcon Controller and locate in its final training area.	
Remove the Falcon IG box (or Boxes if applicable) and locate them at the desired prop to burn.	
Plug the Falcon Controller into a 110V 20A power source.	

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Place the Heat Shields in the rack first then slide the Igniter boxes into them, put the safety bar in place and anchor with the tie downs	
Wheel the podium in place and use the T-Handles to secure it in place	
Load and secure the wall mounted props first securing with the T-Handles	
Load center track props and secure with Y-Handles.	
Remove stabilizer jacks and place in transporter.	
Remove door track spacers and place in transporter.	
Close and secure rear ramp door.	
Document any deficiencies with the equipment to the AHJ	
Complete Daily Safety Log / Startup Check Sheet	

Objectives/Evolutions (brief):

Problems/Comments

Signature:

Date:

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5. Verify LPG lines are connected
6. Restart the PLC by resetting the ON/OFF switch at the panel
7. Test the Flame Detection Eye by lighting a lighter in front of the lens while the system is turned on (**do not** press the enable/Igniter button), the lens should glow orange when it is line with the flame form the lighter.
8. Verify fan is operating
9. If using a wireless handheld pendant turn off the pendant. - Check wireless charge
10. If wireless, turn the wireless "ON" and pause 5 seconds, then rotate the start or enable switch to "Start" position and release. Repeat and you should hear a click at the vallve rack for that burn room – No click noise – Contact Fireblast

Any problems beyond the trouble shooting described above should require notification of the manufacturer. 800-716-1977

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The Fire Control Officer (FCO) shall run the system prior to exposing students to live fires in order to ensure the correct operation of devices such as the gas valves, flame safeguard units, combustion fans, and ventilation fans.

The simulator shall be left in a safe condition upon completion of live fire training evolutions. Debris hindering the access or egress of firefighters shall be removed prior to the beginning of the next training exercise.

Pedestrian traffic in the vicinity of the training site shall be kept 100' clear of the operations area of the live burn. Fire lines shall be established for this purpose.

Awareness of weather conditions, wind velocity, and wind direction shall be maintained. In all cases, a final check shall be made for possible changes in weather conditions immediately before actual ignition.

The water supply for any individual live fire training evolution shall be assessed carefully based on the extent of the evolutions to be performed. Consideration shall be given to the proper control and extinguishments of the fire and the provision of necessary backup lines to protect personnel.

Separate sources shall be utilized when available for the supply of attack lines and backup lines in order to preclude the loss of both water supply sources at the same time.

Exception: A single source shall be sufficient at a training facility or station where the water system has been engineered to provide adequate volume for the evolutions conducted and a backup power source or backup pumps, or both, are in place to ensure an uninterrupted supply in the event of a power failure or malfunction.

Adequate areas for the staging, operating, and parking of fire apparatus that are used in the live fire training evolution shall be designated.

An area for parking fire apparatus and vehicles that are not a part of the evolution shall be designated so as not to interfere with fire ground operations.

Consideration shall be given to locating this area to facilitate prompt response of apparatus in the event of an emergency.

Where required or necessary, parking areas for police vehicles or for the press shall be designated.

A parking area for an ambulance or an emergency medical services vehicle shall be designated. Consideration shall be given to locating this area to facilitate a prompt response in the event of a personal injury to participants in the evolution.

Consideration shall be given to the designation and layout of ingress/egress routes in order to ensure their availability in the event of an emergency.

Prior to conducting actual live fire training evolutions, a pre-burn briefing session shall be conducted for all participants. All facets of each evolution to be conducted shall be discussed, and assignments shall be made for all crews participating in the training session. The location of simulated victims shall not be required to be disclosed, provided that the possibility of victims is discussed during the pre-burn briefing.

A pre-burn plan shall be prepared and shall be utilized during the pre-burn briefing sessions. All safety shutoffs should be identified at this time.

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The Safety Officer shall provide for the safety of personnel on the scene including students, instructors, visitors, and spectators.

The Safety Officer shall not be assigned other duties that interfere with safety responsibilities.

The SO, FCO, LI, and students shall be knowledgeable in the operation and location of safety features available within the burn unit, such as emergency shutoff switches, gas shutoff valves, and evacuation signals.

Sufficient backup lines shall be provided to ensure adequate protection for personnel on training attack lines.

The LI of the live fire training evolutions shall determine, prior to each specific evolution, the number of training attack lines and backup lines necessary. The LI then shall assign the following:

- One instructor on the interior during burns, with a maximum of 5 students to one instructor ratio inside the unit.
- One backup line.
- Sufficient additional personnel to backup lines to provide mobility.
- One additional instructor for each additional functional assignment (e.g. ventilation).
- Department officers can fill the role of instructors outside the building.

Additional safety personnel, as deemed necessary by the Safety Officer, shall be located strategically within the structure to react to any unplanned or threatening situation or condition.

A method of fire ground communications shall be established to enable coordination among the incident commander, the interior and exterior crews, the Safety Officer, and external requests for assistance.

The training unit evacuation plan shall be established and an evacuation signal shall be demonstrated to all participants in an interior live fire training evolution (e.g. withdraw from the building, or abandon the building)

It is recommended that Emergency Medical Technicians be available on site to handle injuries. Written reports should be filled out and submitted on all injuries and on all medical aid rendered as required by your agency.

A thorough search of the building shall be conducted to ensure that no unauthorized persons, animals, or objects are in the structure or unit immediately prior to ignition.

No person(s) shall play the role of a victim inside the unit with live fires.

Fires shall not be located in any designated exit paths.

The training session shall be curtailed, postponed, or canceled, as necessary, to reduce the risk of injury or illness caused by extreme weather conditions.

Each participant shall be equipped with full protective clothing and self-contained breathing apparatus (SCBA). All participants shall be inspected by the Safety Officer prior to entry into a live fire training evolution to ensure that the protective clothing and SCBA are being worn properly and are in serviceable condition. The protective equipment form is located in the manual in the "Forms" section and shall be completed for each member prior to entering the building for live fire training.

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9.7 Fire Control Officer

All FCO's shall be deemed qualified to deliver firefighter training in the unit by completing the operational instruction course provided by *Fireblast 451, Inc.*

The FCO shall be responsible for full compliance with this standard.

The FCO shall be responsible for conducting live fire training evolutions with a gas-fueled training system and shall be trained properly in the complete operation of the system. Only an individual authorized by the system manufacturer shall fill the role of the FCO.

The FCO is responsible for conducting live fire training evolutions with a gas-fueled training system shall be trained properly in the behavior and characteristics of gas fires.

In the event of a malfunction of any part of the ignition system, the temperature monitoring system, or the safety override system, the FCO shall suspend operations of the unit until these systems are fully operational.

The FCO is responsible for all operations in regard to the live fire unit itself. This includes, but is not limited to the following examples:

- Completing the start up/safety check list and log
- Ventilating the rooms prior to the first operation
- Inspecting and checking for LPG leaks around the supply
- Opening supply valves
- Maintaining the air compressor (when applicable)
- Testing the emergency shut off system
- Igniting the LPG props
- Turning on the smoke machine
- Maintaining the level of smoke fluid to full
- Post burn inspections at the end of the day or drills
- Securing all items described above

This Operations Manual has been designed by Fireblast 451, Inc. as a guideline for the agency and training facility authorized to use the simulator described in this Manual. Any use of the simulator, or any other Fireblast 451 equipment or accessories beyond the guidelines set forth in this manual, shall be considered unauthorized, and Fireblast 451 shall have no responsibility or liability to the agency, or any of its employees, agents or students for any property damage or personal injury.

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