

X-OMG Operator's Manual

Document EX1303

Last Update: 07 April 2017



This manual contains proprietary information of Explotrain, LLC. It intended solely for the information and use of parties operating and maintaining the equipment described herein. Such proprietary information may not be used, reproduced, or disclosed to any other parties for any other purpose without the expressed written permission of Explotrain, LLC.

WARNING: Never place objects, especially body parts, over the cannon. When firing, any object in the blast cone is subject to blast effects including very brief moments of intense heat. This flash effect can cause serious flash burns to exposed skin or ignite readily flammable liquids or material; i.e. gasoline, black powder, etc.



Table of Contents:

Uncrating the Model X-0MG	Page 6
Assembling the Model X-0MG	Page 6-8
Installation of the Oxygen Cylinder	Page 6
Installation of the Propane Cylinder	Page 6-7
Mounting the Cannon Assembly	Page 8
Safety Instructions to follow prior to Firing	Page 9-10
Operating the Model X-0MG	Page 11-12
Installation of AA Batteries	Page 11
Setting the Unit ID	Page 11
Mode Summaries	Page 12
Safety Features and Procedures for Firing	Page 143
Storage Requirements	Page 14
Replacing Cylinders	Page 14-15
To replace an Oxygen Cylinder	Page 14
To replace a Propane Cylinder	Page 15
Hardware Input	Page 15
Accessory Output	Page 15
Maintenance and Inspection Procedures	Page 16
Before each use	Page 16
Periodic Checkpoints	Page 16

Table of Figures

Figure 1	Model X-OMG Components	Page 4
Figure 2	Model X-OMG Detail	Page 5
Figure 3	Cannon Detail	Page 7
Figure 4	Control Box	Page 8
Figure 5	Blast Cone	Page 9



WARNING: This symbol indicates that violating this item could cause serious personal injury.



CAUTION: This symbol indicates that violating this item could cause minor or medium personal injuries or material losses.

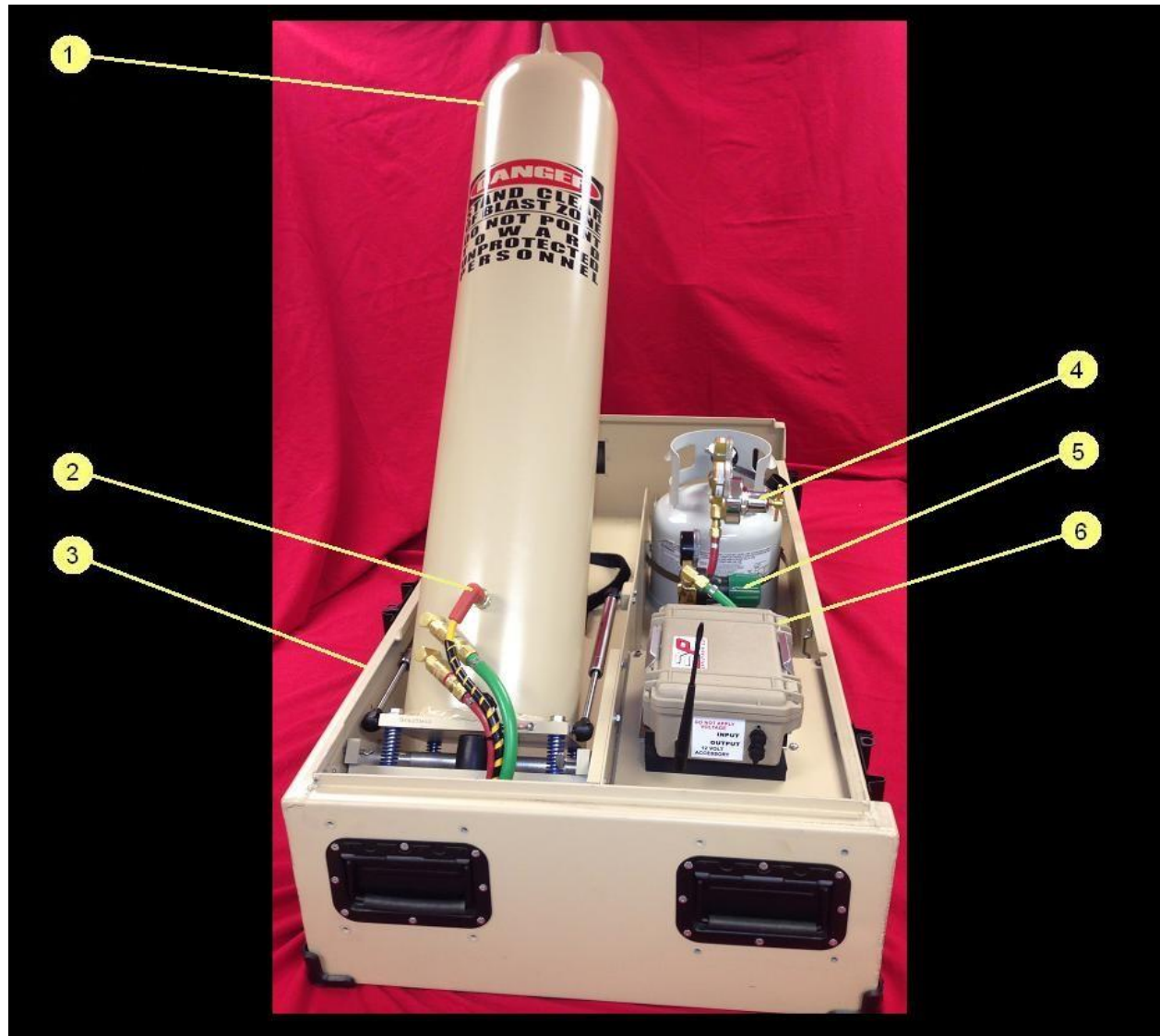


FIGURE 1

1. Cannon
2. Spark Plug
3. Base Enclosure
4. Propane Regulator
5. Oxygen Regulator
6. Control Box (New Style Control Box added August 2013)



Figure 2

1. Cannon	8. Receiver Assembly
2. Secondary Pressure Gage	9. Secondary Pressure Gage
3. Primary Pressure Gage	10. Primary Pressure Gage
4. Oxygen Regulator	11. Propane Regulator
5. Oxygen Main Valve	12. Propane Main Valve
6. Oxygen Cylinder	13. Propane Cylinder
7. Receiver Antenna	14. Cannon Strap

Note: Photo depicts original style Control Box Uncrating the Model X-OMG.



CAUTION: Recommended Lift: A Model X-OMG Explosive Blast Simulator ready for use will weigh approximately 155 lbs and should be carried by the handles attached to the sides of the unit.



When your Model X-OMG Explosive Blast Simulator arrives, the crate will contain the following:

1. Model X-OMG Explosive Blast Simulator
2. Propane Cylinder and Propane Regulator
3. Oxygen Cylinder and Oxygen Regulator
4. Cannon Assembly
5. Operations Manual and Troubleshooting Guide in document holder.

NOTE: The Oxygen and Propane Cylinders are empty and must be filled. If a Material Safety Data Sheet (MSDS) is needed, please visit our website to download a copy.


Assembling the Model X-OMG


Oxygen Cylinder

1. Unclamp the Oxygen Cylinder located beneath the Control Box
2. Remove Oxygen Regulator using 1-1/8" wrench. Note: Do not use pliers or any other size tools.
3. Exchange the Oxygen Cylinder for a full one or have the supplied tank filled; typically at a local welding facility. Your Oxygen Cylinder is fitted with a CGA 540 fitting. Note: Medical Grade oxygen is not required
4. Re-attach the Oxygen Regulator firmly to the Oxygen Cylinder in the proper orientation, see Figure 2, with an 1-1/8" wrench to 40-60 foot pounds. Tighten the green Oxygen Hose Fittings to the Oxygen Regulator with an 11/16" wrench, see Figure 2.

Propane Cylinder

1. Unclamp the Propane Cylinder located beside the Control Box
2. Remove Propane Regulator using 1-1/8" wrench. Note: Do not use pliers or any other size tools.
3. Have the Propane Cylinder filled; typically at a local facility. Your Propane Cylinder is fitted with a standard CGA 510 fitting. Re-attach the Propane Regulator firmly to the Propane Cylinder in the proper orientation, see Figure 5, with a 1-1/8" wrench to 40-60 foot pounds (**Note the left hand threads**). Tighten the red Propane Hose Fittings to the Propane Regulator with an 11/16" wrench, see Figure 2.

 **WARNING:** Do not use Oxygen or Propane Cylinders that have passed their certification date.

 **WARNING:** Do not use Oxygen or disposable Propane Cylinders that show evidence of physical damage or corrosion; i.e. pitting, dents or rust.

NOTE: Larger refillable propane cylinders may be used. If needed, an extension hose may be added to the Propane Regulator to allow attachment to a larger propane cylinder.

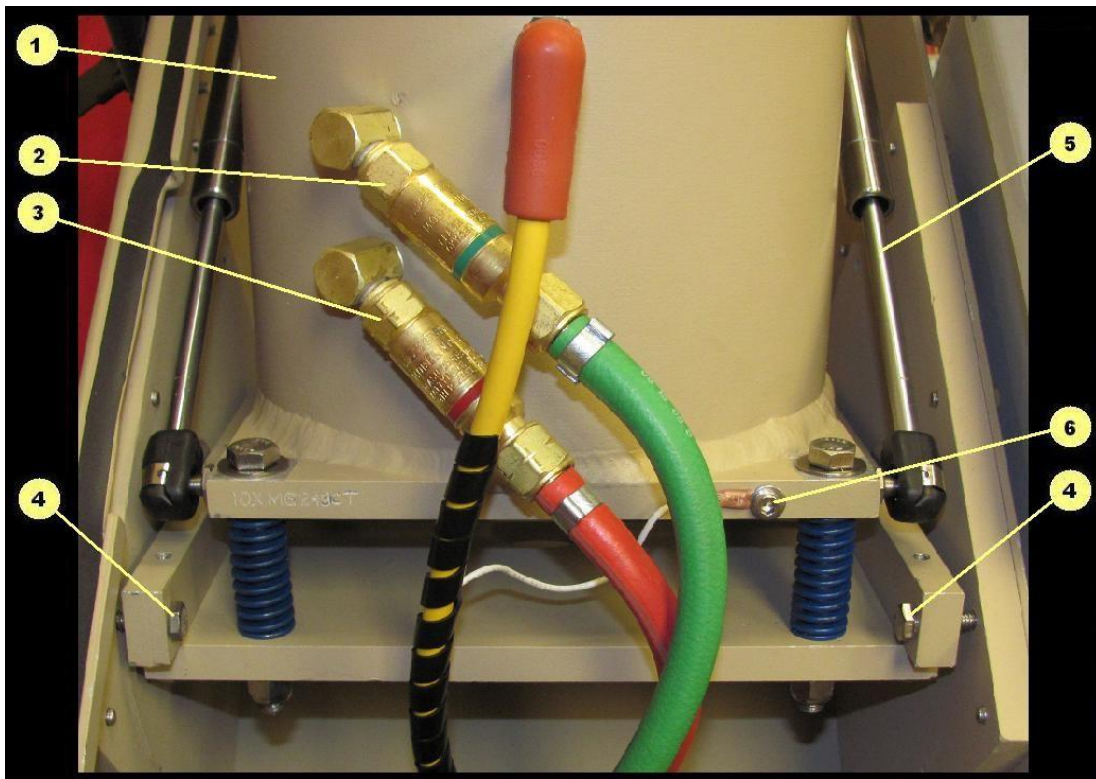


Figure 3

- | | |
|-------------------------------|----------------------------|
| 1. Cannon | 4. Cannon Bolt (4 per) |
| 2. Oxygen Flashback Arrestor | 5. Lift Assist Springs |
| 3. Propane Flashback Arrestor | 6. Spark Plug Ground Screw |

Mounting the Cannon Assembly

1. Release the Cannon Assembly from the Enclosure by loosening the Velcro Cannon Strap.
2. To mount the Cannon Assembly at an angle, raise the Cannon Assembly to approximately a 45 degree angle and secure the Cannon Assembly with **all four** Cannon Bolts as shown in Figure 3.
3. To mount the Cannon Assembly vertically, raise the Cannon Assembly until it is vertical and secure the Cannon Assembly with **all four** Cannon Bolts similar to that shown in Figure 3.



Figure 4

1	Function Switch	6	Input plug
2	X-0 Unit ID Switch	7	Output Plug
3	5 Amp Fuse	8	Mode Switch
4	Battery Pack	9	Armed LED
5	Battery Connector	10	Cannon Cable Plug

DO NOT POINT CANNON TOWARDS **UNPROTECTED PERSONNEL**

Your Model X-OMG is now ready for use. Follow safety instructions below.

Safety Instructions to follow prior to Firing



WARNING: Never place objects, especially body parts, in front of the Cannon. When firing, any object in the **blast cone** is subject to blast effects including very brief moments of intense heat. This flash effect can cause serious flash burns to exposed skin or ignite readily flammable liquids or material; i.e.: gasoline, black powder, etc.

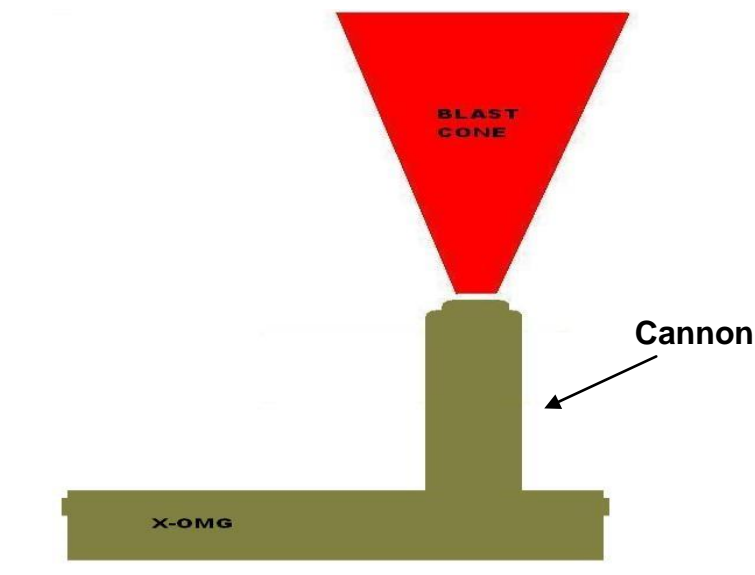




Figure 5





CAUTION: Make sure Model X-OMG is located on a firm level surface prior to blast.




 CAUTION: For additional visual effects you may place various powders on top of the Cannon; note do not use flammable materials such as coffee creamer or flour. Recommended powders are: fuller's earth, talcum powder or chalk. Place powders in a frangible container such as a small paper bag.

 CAUTION: Do not place hard objects such as gravel, rocks etc in blast cone as they will create a fragmentation hazard during firing.

 CAUTION: Hearing and eye protection are strongly recommended for the operator or any person within 35 feet of the unit or exposed to repeated blasts.

 CAUTION: While weatherproof, the Model X-OMG cannot be submerged.

 **WARNING: Never place objects, especially body parts, in front of the Cannon. When firing, any object in the blast cone is subject to blast effects including very brief moments of intense heat. This flash effect can cause serious flash burns to exposed skin or ignite readily flammable liquids or material; i.e.: gasoline, black powder, etc.**

DO NOT POINT CANNON TOWARDS
UNPROTECTED PERSONNEL



Operating the Model X-OMG

Perform Maintenance / Inspection prior to each use of Model X-OMG

Installation of AA Batteries

1. The Model X-OMG uses eight AA Batteries for its DC power supply. Two Battery Packs are provided.
2. Place the Batteries in the Pack and insert into Control Box as shown.
3. Connect the Battery Connector to the Battery Pack as shown.
4. The second Battery Pack is available to use as a spare power supply.
5. To change to the second Battery Pack simply attach the Battery Connector to the second Battery Pack.

**DO NOT POINT CANNON TOWARDS
UNPROTECTED PERSONNEL**

Setting the Unit ID

1. Open the Control Box and locate the UNIT ID rotary switch.
2. Rotate the switch until the arrow points to the desired Unit ID (0 through 9). Note: the Unit ID of the X-MIT must be appropriately set (see X-MIT Operation, below).
3. Unit IDs A through F may only be used with X-COM software enabled Transmitters.



Operating Mode

The Model X-OMG is designed to operate in two modes: **TEST** and **LIVE**. If your unit has been custom programmed, please see the attachment for a description of operating the Model X-OMG with your customized programs.

The operational mode of the X-OMG is determined by the Mode Switch and actual firing of the X-OMG is controlled by the X-LRT or X-MIT Transmitter or Hardwired Trigger Cord provided.

TEST Mode

TEST Mode is an easy and safe way to determine that your Model X-OMG is functioning properly in the scenario in which it will be used. **TEST** Mode is only used to provide an audible signal from the Buzzer whenever the Model X-OMG receives a Fire Signal from the X-LRT or X-MIT transmitter or Hardwired Trigger Cord. No gas or spark is used, and the entire firing system is disabled in this mode.

1. Flip the Mode Switch from **OFF** to **TEST**. The buzzer will beep once and the Armed LED will start flashing.
2. Briefly press the appropriate X-0 Unit ID Button on the X-MIT Transmitter. The Armed LED on the side of the Control Box changes from flashing to solid once the X-OMG is Armed.
3. Press and hold the appropriate X-0 Unit ID Button of the X-MIT Transmitter to produce a brief audible signal from the Buzzer. The three beeps indicate the three functions (Gas Fill, Spark, Accessory Output) of the Firing Cycle.
4. When finished, simply flip the Mode Switch to the middle position: **OFF**.

LIVE Mode

LIVE Mode is used to provide a loud report when the Model X-OMG receives a Fire Signal. This report can be Extremely Loud and may cause hearing loss if protective equipment is not used.




WARNING: Personnel should stand back at least 35 feet when firing and stay clear of the Blast Cone.

1. Make sure the Cannon Assembly is securely attached or deployed.
2. Flip the Mode Switch from **OFF** to **LIVE**. The buzzer will beep once and the Armed LED will start flashing.



3. Open the Main Valve on the Oxygen Cylinder slowly by turning counterclockwise until FULLY open.
4. The Primary Pressure Gage will indicate the amount of pressure in the cylinder. A full cylinder is 2015 PSI.
5. Open the Main Valve on the Propane Cylinder slowly by turning counterclockwise until FULLY open.
6. Turn the handle on the Regulator Adjustment Screw of both the Oxygen and Propane Regulators clockwise until the proper operating pressures are reached on the Secondary Pressure Gages.

 **CAUTION:** Operating pressures of **70 PSI** for oxygen and **30 PSI** for propane are the maximum recommended pressures for achieving the maximum sound level. **30 PSI** for oxygen and **15 PSI** for propane are the minimum pressures to reliably simulate an explosive blast.

Safety Features and Procedures for Firing

ARMING

To operate and fire the Model X-OMG in **LIVE** Mode, the unit must be Armed. The Model X-OMG will not fire when Disarmed.

1. Flip the Mode Switch from **OFF** to **LIVE**. The buzzer will beep once and the Armed LED will start flashing.
2. Briefly press the appropriate X-0 Unit ID Button of the X-MIT Transmitter. The Armed LED on the side of the Control Box changes from flashing to solid once the X-OMG is Armed.
3. The Model X-OMG may be Armed or Disarmed remotely at any time in **LIVE** Mode by briefly pressing the appropriate X-0 Unit ID Button of the X-MIT Transmitter.

FIRING

The Model X-OMG can be Fired only when Armed.

1. Once armed, the Model X-OMG can be Fired by pressing and holding the appropriate X-0 Unit ID Button of the X-MIT Transmitter for at least one second to initiate a Firing sequence (see X-MIT Operation, below).
2. A brief (2.5 second) flow of gas into the Cannon is immediately followed by an extremely loud (130+ dB) report, as the gas mixture is ignited by the Spark Plug.
3. The Model X-OMG can be Fired again by repeating the above Firing Sequence.

If a continuous Fire Signal is received, the unit will still only allow a single fuel gas fill to prevent over filling before ignition.



LIVE Mode Summary

- 1 Open Main Valve on Oxygen Cylinder
- 2 Set Secondary Pressures on Regulators (70psi Oxygen; 30psi Propane max)
- 3 Flip Mode Switch to **LIVE**
- 4 Arm the Model X-OMG with a brief button press
- 5 Fire the Model X-OMG with a one second button press
- 6 Unit can be fired again immediately
- 7 Disarm the Model X-OMG with a brief button press
- 8 Flip Mode Switch to **OFF** (center position)



CAUTION: The only time you should hear gas flow is at the beginning of each Firing Sequence. If you should hear gas flowing at any other time, immediately turn the unit to **OFF**, close main valves, and check all hose and regulator fittings.

Turn Off Instructions

Disarm the Model X-OMG by briefly pressing the appropriate X-0 Unit ID Button of the X-MIT Transmitter. This action toggles the unit between Armed and Disarmed status. Once the Armed Indicator LED changes from solid to flashing, the unit is Disarmed and will not fire.

Once the unit is Disarmed, flip the Mode Switch on the Control Box to the middle position: **OFF**. Also, switch-off the X-MIT.

Storage Requirements

When storing the Model X-OMG, the fuel lines should be depressurized.

1. Once the unit is Disarmed, close the Main Valves on the Oxygen and Propane Cylinders.
2. Arm and Fire the unit to release the residual fuel gasses in the lines.
3. Turn the unit Off (see above).



WARNING: While the quantities of fuel gasses released may or may not be sufficient for the unit to actually Fire, this bleeding operation should be treated as an actual Firing sequence for safety reasons.



Replacing Cylinders

To replace an Oxygen Cylinder:

1. Turn off the Model X-OMG.
2. Depressurize the fuel lines (see **Storage Requirements**, above).
3. Remove the hoses from the Solenoid Valves if desired.
4. Remove the Oxygen Cylinder.
5. Install the replacement Oxygen Cylinder.
6. Re-attach the Oxygen Regulator firmly to Oxygen Cylinder in orientation (see Figure 2) with a 1-1/8" wrench. Do not use pliers or any other size tools.
7. Attach the **green** Oxygen Hose to the Oxygen Regulator with an 11/16" wrench (see Figure 2).
8. Inspect the gas hose fittings-to-regulator attachments for leaks by checking for bubbles when sprayed with soapy water.

To replace a Propane Cylinder:

1. Turn off the Model X-OMG.
2. Depressurize the fuel lines (see **Storage Requirements**, above).
3. Remove the hoses from the Solenoid Valves if desired.
4. Remove the Propane Cylinder.
5. Install the replacement Propane Cylinder.
6. Attach the Propane Cylinder to the Propane Regulator using a 1-1/8" wrench. Do not use pliers or any other size tools.
7. Attach the **red** Propane Hose to Propane Regulators by tightening the fitting with an 11/16" wrench (see Figure 2).
8. Inspect the gas hose fittings-to-regulator attachments for leaks by checking for bubbles when sprayed with soapy water.



CAUTION: The Propane Regulator Adapter is connected to the Propane Regulator with left-handed threads and are tightened with a 1-1/8" wrench.

Hardwire Input

Your Model X-OMG has an Input Port on the Control Box and a Hardwired Trigger Cord to allow for hardwired operation.

1. Momentarily grounding Conductor **2** of the hardwired input (connect Black Conductor **2** to the Green/Yellow Ground Conductor) will toggle the X-OMG between Armed and Disarmed status.
2. Momentarily grounding Conductor **1** will send a Fire signal to the X-OMG.



3. Hardwire inputs and X-MIT inputs can be used at the same time (i.e. a pressure plate switch connected to the Hardwired Trigger Cord and an X-MIT can both be used to Fire the X-OMG).

ACCESSORY OUTPUT

Your X-OMG is equipped with an Accessory Output. It provides a 12 volt DC output as well as a discrete grounded output that can be used to operate a wide range of standard or custom made accessories.

INPUT

Your X-OMG has a single input plug to allow for up to two discrete input signals or an RS485 input. Please note that you must contact Explotrain for instructions on the modifications necessary for an RS485 format input.

Maintenance and Inspection Procedures for your X-OMG Explosive Blast Simulator

Before Each Use:

Ensure Batteries are fully charged.

Ensure Control Box latch is fully secured.

Inspect Regulators and Gages for cracks or obstruction of indicator pointers. If cracks or obstructions are visible see troubleshooting guide.

Make sure no water or particles remain in the Cannon. If so, the Drain Plug at the base of the Cannon can be removed to allow water to drain out.

Make sure Oxygen Cylinder has sufficient charge by checking primary pressure gage.

A fully charged Cylinder (2015 psi) should provide approximately 75 shots.

The Propane Cylinder should provide over 100 shots; Primary Pressure Gage is not an accurate indicator of remaining liquid propane;

Make sure Receiver Box lid and Velcro strap are firmly latched and closed.

Periodic Checkpoints

Inspect welds at top of Cannon for visible cracks or other indications of fatigue. If visible, see troubleshooting guide.

Inspect Spark Plug body; for cracks or other indications of fatigue. Make sure spark plug is tight, if not use 5/8 wrench and tighten to 40 ft-lbs.

Ensure Spark Plug ignition wire is fully seated and firmly attached to spark plug. Ensure Oxygen and Propane Cylinders are firmly secured before use.



Thank you for purchasing your Model X-0MG Explosive Blast Simulator. We at Explotrain, LLC truly appreciate your business.

If you have any questions or comments on this, or any of our products please let us know.

Phone: (850) 862-5344

Fax: (850) 862-0344

information@explotrain.com