



X-AK47™ Operating Manual

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COMPANY PROPRIETARY



WARNING: Never place objects, especially body parts, in front of the barrel. 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.



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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

Un-crating the Model X-AK47™

When your Model X-AK47 Small Arms Fire Simulator arrives, the crate will contain the following:

1. Model X-AK47 Unit
2. EMPTY Oxygen Cylinder (attached)
3. Operating Manual in document holder

X-AK47™ External Components



FIGURE 1

- | | |
|-------------------------------|-----------------------|
| 1. Bolt Cover | 4. Thumb Release |
| 2. Oxygen & Propane Solenoids | 5. Grip Safety Switch |
| 3. Hose & Harness Assembly | 6. Trigger |

X-AK47™ Internal Components



FIGURE 2

- | | |
|------------------------|---------------------|
| 1. Ground Screw | 5. Bolt Capture Rod |
| 2. Chamber | 6. Spark Plug |
| 3. Bolt | 7. Bolt Cover |
| 4. Bolt Capture Spring | |

Gas Cylinder Assembly Components



FIGURE 3

- | | |
|---------------------------------------|-------------------------|
| 1. Oxygen Secondary Gauge | 6. Oxygen Primary Gauge |
| 2. Oxygen Regulator Adjustment Screw | 7. Oxygen Main Valve |
| 3. Propane Regulator Adjustment Screw | 8. Oxygen Cylinder |
| 4. Disposable Propane (not included) | 9. Gas Cylinder Clamp |
| 5. Control Box | |

Control Box Internal Components

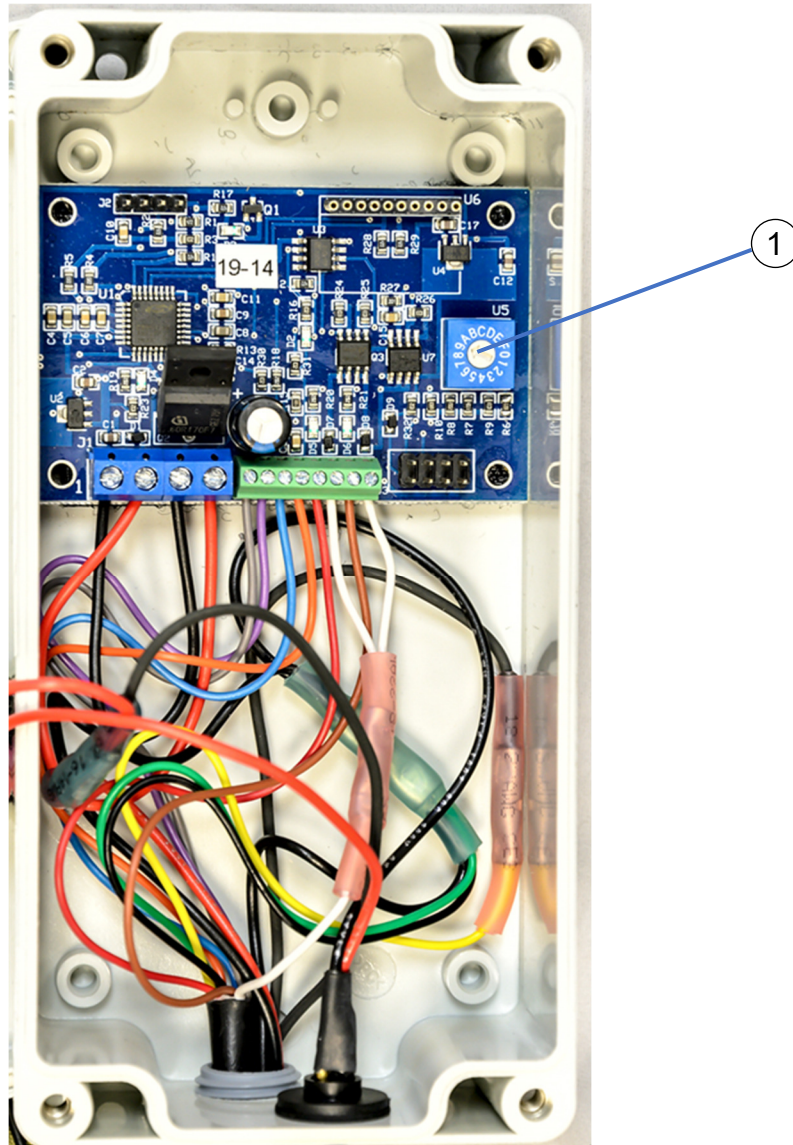


FIGURE 4

1. Rotary Function Switch



NOTE: The Oxygen Cylinder is shipped EMPTY and must be filled. The Propane Cylinder(s) must be purchased separately. If a Material Safety Data Sheet (MSDS) is needed, please visit our website to request a copy.

Assembly of the Oxygen Cylinder

1. Loosen the Gas Cylinder Clamps and remove the EMPTY Oxygen Cylinder.
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 recommended for use.
4. Re-attach the Oxygen Regulator firmly to the Oxygen Cylinder in the proper orientation (see Figure 3) with a 1-1/8" wrench to 40-60 foot pounds.

Procurement and Installation of the Disposable Propane Cylinder

1. A disposable Propane Cylinder must be purchased and installed for proper operation.
2. Recommended commercially available types of disposable Propane Cylinders are those used typically for recreational camping, such as:



Bernzomatic 16.4 oz.



Coleman 16.4 oz.



3. The Propane Cylinder should be held in an upright position (>45°) during use.
4. Attach the Propane Cylinder to the Propane Regulator equipped with the Propane Regulator Adapter (See Figure3). Hand-tighten cylinder only.



WARNING: Do not use Oxygen or disposable Propane Cylinders that have passed their date of certified use.



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



Use the Gas Cylinder Clamp to firmly attach both the Oxygen and Propane Cylinders to the Gas Cylinder Bracket as shown in Figure 3.

Gas Cylinder Clamps



FIGURE 5

DO NOT POINT THE BARREL TOWARDS
UNPROTECTED PERSONNEL



Preparation for Firing



WARNING: Always verify that no foreign objects or debris are inside the barrel prior to use.

Replacing the Battery

The Model X-AK47 uses one 12 Volt Rechargeable Battery for its DC power supply. It is not necessary to remove the battery from its case to recharge it. Simply disconnect the Battery Cable from the Control Box and plug it into the Battery Charger.

If it becomes necessary to replace the battery provided:

1. Turn the X-AK47 Switch **OFF**. (see Figure 3).
2. Open the Battery Case lid.
3. Disconnect the leads from the battery terminals and remove battery. Replace Battery into the Battery Holder with the terminals facing up.
4. Attach the battery leads observing correct polarity (Blue connector to Black (-) terminal post. Pink connector to Red (+) terminal post).
5. Close and secure the Battery Case lid.



Setting the Operational Mode

When triggered, the X-AK47 will fire continuously (automatic) for approximately 30 rounds to simulate a full magazine. The X-AK47 will then pause for approximately 5 seconds to simulate a magazine change and will be ready for another 30 rounds.

The X-AK47 is equipped with a thermal shut-down safety feature to protect the barrel and internal components from overheating after continuous use (500+ rounds). If the unit shuts down, it will not fire until the internal temperature cools down to a level that will not harm the components.

The X-AK47 fire rate comes pre-set at 8 rounds per second which corresponds to position 9 on Rotary Function Switch (Figure 4). To increase or decrease the firing rate:

1. Remove the (4) screws securing the Control Box cover.
2. Open the Control Box and locate the Rotary Function Switch (Figure 4).
3. Using a small standard screwdriver, adjust the Switch to one of the settings in the chart below. (Note: Above setting 'A', the setting remains the same at 9/Sec.)

<u>Switch Position</u>	<u>Fire Rate</u>
0	1/Sec
1	1/Sec
2	2/Sec
3	3/Sec
4	4/Sec
5	4.8/Sec
6	5.6/Sec
7	6.4/Sec
8	7.2/Sec
9	8/Sec
A	9/Sec



Your Model X-AK47 is now ready for use.

FOLLOW SAFETY INSTRUCTIONS BELOW!

Safety Instructions to follow prior to Firing



CAUTION: Make sure operator has positive control of the Model X-AK47 before firing.



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



CAUTION: Hearing and eye protection are strongly recommended.



CAUTION: While weather resistant, the Model X-AK47 cannot be submerged.



WARNING: After firing the X-AK47, the Barrel will be HOT and may cause severe burns. Allow sufficient cooling time before touching the barrel.



WARNING: Never place objects, especially body parts, in front of the Barrel. When firing, any object in the blast cone (see Figure 6) 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 6

**Perform Maintenance and Inspection procedures prior to each use of Model X-AK47.
(See Maintenance and Inspection Procedures on Page 15)**

Operating the Model X-AK47

LIVE Mode

In LIVE Mode, the Model X-AK47 will provide a burst of loud reports when the Grip Safety Switch (Figure 1) is depressed and a Fire Signal is received from the trigger. This report can be extremely loud and may cause hearing loss if protective equipment is not used.



Caution: Personnel should stand back at least 15 feet when firing and stay clear of the Blast Cone. Personal hearing protection is recommended.

1. Make sure operator has positive control of the X-AK47.
2. Turn the X-AK47 Power Switch to **LIVE**.
3. Open the Main Valve on the Oxygen Cylinder slowly by turning counterclockwise until FULLY open.
4. The Primary Pressure Gauge will indicate the amount of pressure in the Oxygen cylinder. A full cylinder is 2015 PSI.



1. The disposable Propane cylinder does not have a gauge. However, the cylinder will discharge at a rate proportional to the oxygen cylinder provided. Therefore, we recommend replacing the disposable propane cylinder every time the oxygen cylinder is refilled.
2. Turn the handle on the Regulator Adjustment T-handle of the Oxygen clockwise until the proper operating pressures are reached on the Secondary Pressure Gauge. The secondary pressures are typically 20-35 PSI for the oxygen. The nominal pressure is approximately 30 PSI. Settings will vary based on ambient temperature and humidity and should be tested/adjusted prior to each day's use.
3. Depress the Grip Safety Switch and pull the trigger. Note: If the trigger is pulled without depressing the Grip Safety Switch, only oxygen will flow from the barrel and the "clicking" sound of the firing sequence will be heard.



CAUTION: An operating pressure of 35 PSI for the oxygen is the maximum recommended pressure for achieving the maximum sound level. 20 PSI for oxygen is typically the minimum pressure to reliably simulate gun fire.

SAFETY FEATURES AND PROCEDURES FOR FIRING

PURGING

Upon power up, the X-AK47 will need to remove excess air the first time it is fired. This purging is performed so that a more uniform mixture of propane is available to ensure improved consistency of performance. To purge the X-AK47, the unit must be powered-on and gas tank valves opened as described in the previous section.

1. Press and hold the Grip Safety Switch and the Trigger.
2. The propane valve will open and purge the propane chamber for approximately 1 second to bleed off excess air in the system. Oxygen will not flow and the unit will not spark. Allow any purged propane to dissipate, typically 30 seconds or more, before firing.
3. After purging, the X-AK47 can be fired normally.
4. This purging operation is performed once every time the unit is powered up.



WARNING: Do Not Purge the X-AK47 in enclosed areas or tightly confined spaces.



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

Turn Off Instructions

Flip the X-AK47 Power Switch to the **OFF** position.



WARNING: After firing the X-AK47, the Barrel will be **HOT** and may cause severe burns. Allow sufficient cooling time before touching the barrel.

Storage Requirements

When storing the Model X-AK47 the fuel lines should be depressurized:

1. Once the unit is OFF, close the Main Valve on the Oxygen Cylinder.
2. Turn regulator adjustment screw counterclockwise until minimal resistance is felt. **DO NOT REMOVE THE ADJUSTMENT SCREW FROM THE REGULATOR!**
3. Loosen the Gas Cylinder Clamps (Figure 3).
4. Disconnect the Propane cylinder before storing. Because the Propane cylinder does not have a main valve, disconnecting the cylinder is the only method to completely secure propane.
5. Turn unit back ON and attempt to fire the X-AK47 to purge gas from lines. Turn unit back OFF when completed.



WARNING: While the quantities of residual gasses released 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

Replacing an Oxygen Cylinder

1. Turn OFF the Model X-AK47.
2. Depressurize the fuel lines (see **Storage Requirements**, above).
3. Loosen the Gas Cylinder Clamps (Figure 3)
4. Remove the Oxygen Cylinder and remove the regulator with a 1-1/8" wrench.



5. Attach the Oxygen Regulator firmly to the replacement Oxygen Cylinder in the correct orientation (see Figure 3) with a 1-1/8" wrench. Do not use pliers or any other size tools.
6. Tighten the Gas Cylinder Clamps
7. Inspect the gas fittings-to-regulator attachments for leaks by checking for bubbles when sprayed with soapy water.

Replacing a Disposable Propane Cylinder

1. Turn-off the Model X-AK47.
2. Depressurize the fuel lines (see **Storage Requirements**, above).
3. Loosen the Gas Cylinder Clamps (Figure 3)
4. Remove the disposable Propane Cylinder.
5. Install the replacement disposable Propane Cylinder (hand tighten only.)
6. Tighten the Gas Cylinder Clamps
7. Inspect the gas hose fittings-to-regulator attachments for leaks by checking for bubbles when sprayed with soapy water.

Maintenance and Inspection Procedures

Before Each Use

- Ensure that the Battery is fully charged.
- Inspect the Regulators and Gauges for cracks or obstruction of the indicator pointers.
- Before re-attaching Oxygen and Propane hoses and connections, clean and inspect to ensure that no foreign particles such as dirt, sand, etc. are present.
- Make sure no water, dirt, or other foreign materials are in the firing chamber or barrel.
- Make sure the Oxygen Cylinder has sufficient charge by checking primary pressure gauge. A fully charged Cylinder contains 2015 PSI.
- Check that the Disposable Propane Cylinder contains liquid by shaking the cylinder.
- Ensure Oxygen and Disposable Propane Cylinders are firmly secured before use (the Propane Cylinder must be in an upright position).



Periodic Checkpoints

- Inspect the barrel and welds of the X-AK47 body for visible cracks or other indications of fatigue.
- Inspect the Spark Plug body for cracks or other indications of fatigue. Make sure the Spark Plug is tightly seated - if not, use a 5/8" wrench and tighten securely.

Tuning and Troubleshooting Procedures

Tuning

Your X-AK47 Small Arms Fire Simulator uses a precisely blended mixture of oxygen and propane inside a small combustion chamber. This requires valves opening and closing in as little as 50 mS and near exact timing of the ignition to allow for proper combustion to produce the desired report and allow the chamber to be cleared of any residual gas, heat and flame before the next shot. Most problems are the result of improper ignition of a gas mixture that produces a brief flame instead of a loud report.

If you are having issues with flames instead of reports, the problem is likely with the gas pressures. Please note that ignition of the gas mixture, even if it produces a flame instead of a report, indicates that all components of the X-AK47 are functioning. If repeatedly fired with flames this will overheat a barrel. Allow sufficient cooling time, DO NOT touch the barrel until sufficiently cooled.

Because the pressure of the disposable propane cylinder comes preset at 10 psi, the most effective way to find the proper gas pressure ratio is by adjusting the oxygen settings. For the oxygen supply, we would recommend starting with the oxygen regulator set at 30 psi. If the X-AK47 fires but does not produce the desired (optimal) report, slowly increase pressure until the X-AK47 produces the desired report.

If the X-AK47 does not fire at 10 psi, slowly increase the oxygen pressure until the X-AK47 produces a report. If a report is not heard before increasing to 35 psi, turn the oxygen regulator (T-handle) counter-clockwise approximately 5-6 turns, the secondary pressure gauge will remain at 35 psi until pressure is bled off. While observing the secondary gauge, repeatedly pull the trigger to bleed off the pressure. When a report is heard, make a note of that pressure and adjust the regulator to that pressure. Slowly increase the oxygen pressure until the X-AK47 produces the desired report.



Outside Temperature	Recommended Oxy psi	Recommended Propane psi
80°F and above	25-35 psi	Preset @ 10 psi
65°and below	25-35 psi	Preset @ 10 psi

Troubleshooting

If your X-AK47 is producing brief flames instead of a series of loud reports, the issue is most likely one of tuning (see above) and not troubleshooting.

If, however, your X-AK47 produces neither flames nor reports when fired, use the troubleshooting guide below:

No Power (X-AK47 is completely unresponsive, no LEDs lit on circuit board or cover)
Ensure battery is properly charged and firmly seated in battery holder. Make sure connectors are firmly seated on the battery tabs.

Gas Leak (Excessive smell of propane, excessive use of gas, particularly during periods of light use)

To check for leaks, apply solution of soapy water to the exterior of all gas line fittings and the end of the barrel and look for bubble formation. Alternatively, to check the oxygen side of the system, slightly open the main valve of the oxygen cylinder and close the valve before the pressure in the secondary pressure gauge reaches its set level. A leak is indicated by a drop in the pressure indicated by the secondary pressure gauge. By shutting the main valve before the primary pressure gauge indicates a pressure reading, only the volume of gas that is pressurizing the secondary gauge is available to the system thereby making any leak show up much sooner than if an additional reservoir of gas were available from the primary gauge or main cylinder.

If a leak is found, tighten the leaking fitting. DO NOT OVERTIGHTEN. Simply wrench tight fittings are sufficient. If still leaking, contact Explotrain at 850-862-5344.

If still unable to get the X-AK47 to produce report or flame, you may have an issue with dirt or debris in one or both valves. Please contact Explotrain for further information.



**Thank you for purchasing your
Model X-AK47™ Gun 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
information@explotrain.com**

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