



X-OHW and X-05 Troubleshooting and Repair Guide

Document EX1402

Last Update: November 15, 2023



COMPANY PROPRIETARY



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

Introduction	Page 3
Disconnecting Cylinders	Page 5
Reconnecting Cylinders	Page 5
Test Mode Diagnostic Procedures	Pages 6-7
Live Mode Diagnostic Procedures	Pages 7-8
No Power	Page 9
Connections	Page 9
Transmit/Receiver	Page 9
Spark Plug	Page 10
Gas Valves	Page 10
Back Flushing Procedure	Appendix

Table of Figures

FIGURE 1 Gas Valve Connections	Page 4
FIGURE 2 Control Box Detail	Page 6



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

We have provided this manual to assist you in diagnosing and correcting problems that may occur with your Model X-OHW or X-05 Explosive Blast Simulator. This manual is to be used in conjunction with your Model X-OHW or X-05 Operator's Manual. If at any time, you are not satisfied with the performance of your Model X-OHW, X-05 or any of our products, please contact us at (850) 862-5344. We will gladly assist you in any way to diagnose and correct any issues you may have.

Please note that the Model X-OHW and X-05 are very similar in construction and operation and that photos and components of either are often used interchangeably in this manual.



CAUTION: The introduction of foreign debris, e.g., sand or dirt, into the gas system of the blast simulator may cause the valve to malfunction by sticking in the open position, thereby allowing gas to flow freely causing a potentially unsafe condition. It is imperative to keep the ends of the hoses and valve fittings covered while they are not connected to each other. If you suspect dirt may have been accidentally introduced into a hose, before connecting it to the valve you may connect one end to its gas source and open the valve momentarily to blow the dirt from inside the hose. Be sure to wear eye protection and do not point the open hose toward any personnel or open flame.

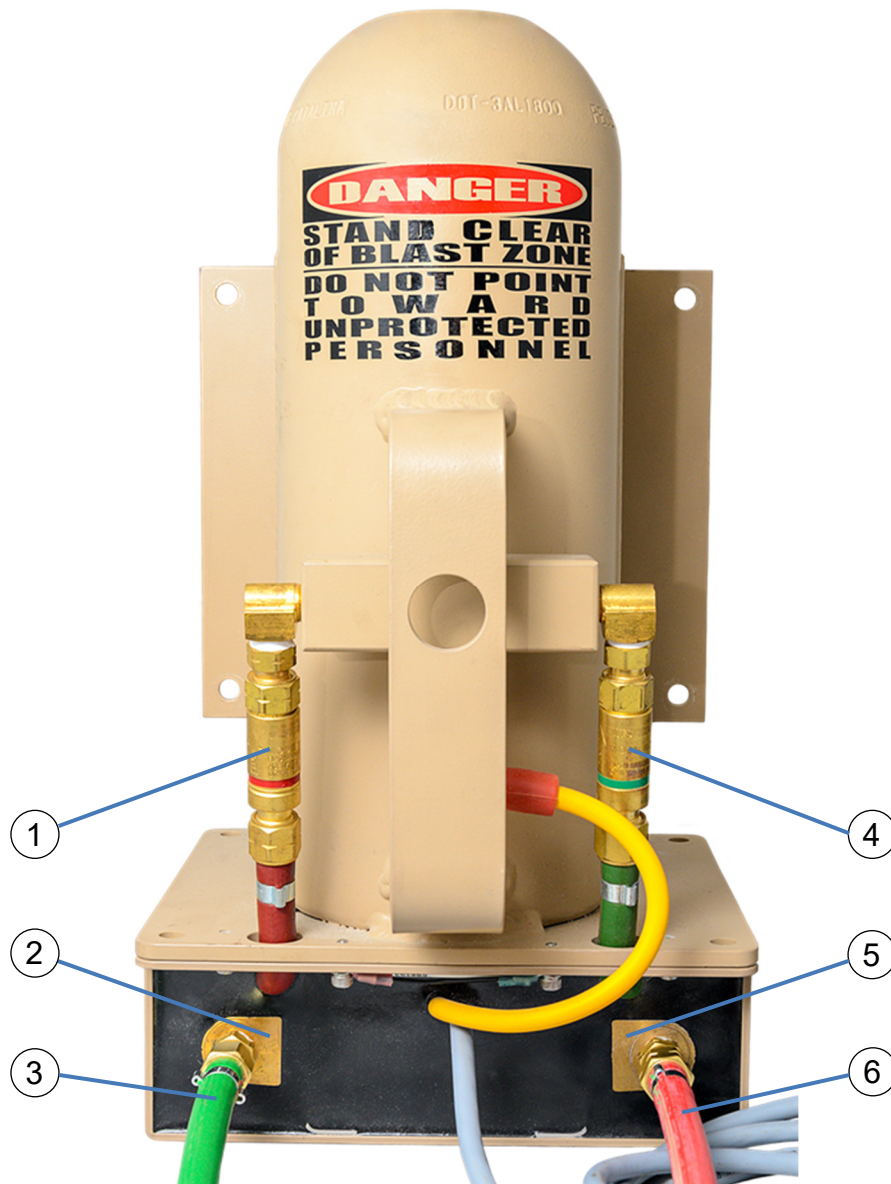


FIGURE 1

1. Propane Flashback Arrestor
2. Oxygen Solenoid Valve
3. Oxygen Hose

4. Oxygen Flashback Arrestor
5. Propane Solenoid Valve
6. Propane Hose



ALWAYS ENSURE BATTERIES ARE FULLY CHARGED AND PRODUCING MORE THAN 12 VOLTS DC BEFORE PERFORMING DIAGNOSTICS.



WARNING: DISCONNECT OR REMOVE PROPANE AND OXYGEN CYLINDERS TO PREVENT ACCIDENTAL FIRING! SEE INSTRUCTIONS BELOW:

Disconnecting Cylinders

1. Turn off the Model X-OHW.
2. There are two choices when isolating the Oxygen and Propane gas cylinders from the simulator cannon while troubleshooting:
 - Disconnect from the cannon:

Disconnect the **green** Oxygen Hose and **red** Propane Hose Fittings from the cannon using a 11/16" wrench to loosen the Hose Coupler Nut while using a 5/8" wrench to hold the fitting on the cannon. Cover the open fittings on the hose and cannon with tape to prevent any dirt or foreign debris from entering the valve. **Note: all red Propane hose fittings are left-handed threads.**
 - Disconnect from the regulator:

Disconnect the **green** Oxygen Hose and **red** Propane Hose Fittings from its respective regulator using a 11/16" wrench to loosen the Hose Coupler Nut while using a 9/16" wrench to hold the fitting on the regulator. Cover the open fittings on the hose and regulator with tape to prevent any dirt or foreign debris from entering the valve.

Reconnecting Cylinders

1. Turn off the Model X-OHW.
2. To reconnect the gas cylinders to the simulator, reverse the procedure of whichever option you chose above. Do not overtighten the Hose Coupler Nut.



WARNING: EVEN IF GAS HOSES AND CYLINDERS ARE DISCONNECTED, RESIDUAL GAS MAY BE PRESENT ALLOWING THE CANNON TO FIRE.

X-OHW Control Box



FIGURE 2

- | | |
|----------------------|-----------------------|
| 1. Function Switch | 6. Input Plug |
| 2. X-0 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 |

TEST MODE DRY FIRING DIAGNOSTIC PROCEDURES FOR MODEL X-OHW

Operating your Model X-OHW in **TEST** mode will establish whether or not the Control board is operational and if the Fire Signal of the receiver and transmitter are functioning.

1. Ensure the Propane and Oxygen Cylinders are disconnected, see page 4.
2. Connect the Cannon Cable from the X-OHW cannon to the Cannon Cable Plug on the control box.
3. Turn the Model X-OHW Mode Switch to the **TEST** mode.
4. The Armed LED of the Control Box should begin flashing. If no Armed LED, see No Power. If the Armed LED flashes rapidly, i.e. more than once per second, see Connections and Transmit/Receive.
5. Arm the X-OHW using an X-MIT, X-LRT, X-ACT, or Hardwire input cable. The Armed LED should illuminate continuously instead of flashing. If not, see Connections and Transmit/Receive.



6. Fire the X-OHW using an X-MIT, X-LRT, X-ACT or Hardwire input cable. The Buzzer should produce three distinct beeps. If not, see Connections and Transmit/Receive. These beeps will correspond with the length of the gas fill, spark ignition, and Accessory Output respectively.
- 7.

If the Model X-OHW functions properly in **TEST** Mode, the Control Board is powered and functional and the Receiver and Transmitter are functional.



WARNING: DISCONNECT OR REMOVE PROPANE AND OXYGEN CYLINDERS TO PREVENT ACCIDENTAL FIRING! SEE PAGE 4 FOR INSTRUCTIONS.

LIVE MODE DRY FIRING DIAGNOSTIC PROCEDURES FOR X-OHW

1. Ensure Propane and Oxygen Cylinders are disconnected, see Page 4 for instructions.
2. Connect the Cannon Cable from the X-OHW cannon to the Cannon Cable Plug on the control box.
3. Turn the Model X-OHW Mode Switch to the **LIVE** mode.
4. The Armed LED of the Control Box should begin flashing. If no Armed LED, see No Power. If the Armed LED flashes rapidly, i.e. more than once per second, see Connections and Transmit/Receive.
5. Arm the X-OHW using an X-MIT, X-LRT, X-ACT or Hardwire input cable. The Armed LED should illuminate continuously instead of flashing. If not, see Connections and Transmit/Receive.
6. ***WARNING: Ensure the Oxygen and Propane gas cylinders are disconnected before proceeding to the next step.***
7. Once the Model X-OHW is Armed, Fire the X-OHW using an X-MIT, X-LRT, X-ACT or Hardwire input cable to dry fire the Model X-OHW. The following should occur:

You should hear a “click” as the Gas Valves at the base of the Cannon open (see warning below) followed by a “clunk” as they close. The time between the valves opening and closing is determined by the Gas Fill time set by the Function Switch. If not, see Connections and Power.



You should then hear a faint buzz from the Spark Plug. If not, see [Spark Plug](#).

CAUTION: DO NOT LOOK INTO THE CANNON TO SEE IF YOU CAN SEE THE SPARK!

These indicate the proper functioning of the Gas Valves and Spark Plug, both of which are essential for proper functioning of your Simulator.



WARNING: DISCONNECT OR REMOVE PROPANE AND OXYGEN CYLINDERS TO PREVENT ACCIDENTAL FIRING! SEE PAGE 4 FOR INSTRUCTIONS.



WARNING: EVEN IF GAS HOSES AND CYLINDERS ARE DISCONNECTED RESIDUAL GAS MAY BE PRESENT ALLOWING THE CANNON TO FIRE.

LIVE MODE FIRING DIAGNOSTIC PROCEDURES FOR X-OHW

1. Fire the X-OHW as above, but with Gas Cylinders connected and set to normal operating pressures.
2. If gas flows before or after firing, see [Gas Valves](#).
3. If gas flows normally but no report, see [No Power](#) and [Spark Plug](#).

Some notes on Live Firing: The flow of gas should be audible although the actual sound level may be quite different if the gas flow "resonates" in one or more valves. This typically occurs at higher cylinder pressures and as the cylinder pressure decreases, so does the gas flow and the resonant tone stops. Both conditions are normal.

If gas flow from only one of the gas cylinders is suspected, set the Function Switch to 0 (No Spark) and fire the X-OHW with only one of the gas cylinder valves open at a time. This will help determine if only one of the gas valves is functioning normally.

Testing has shown that once battery voltage drops much below 11.2 - 11.3 volts, proper operation becomes increasingly unreliable.

Gas Consumption: At 70 psi a full Oxygen Cylinder should deliver nearly 100 total seconds of gas flow, i.e. 200 shots at Function Switch Setting 5 (0.5 second fill) or 50 shots at Setting C (2 second fill). A one pound disposable propane cylinder should deliver up to a total of 75 shots although propane delivery will drop significantly at colder temperatures.



No Power

If your Model X-OHW is not receiving power, possible corrections include:

1. Replace the AA Batteries
 - a. The easiest option is to move the Battery Connector to the other Battery Pack if present.
 - b. Remove the AA batteries from the Battery Pack and replace with new AA batteries.
2. Replace the Fuse, see Figure 2, with a commercially available 5 Amp 2AG Fuse.
3. No Power may in fact be Low Power causing the Simulator to function abnormally by improperly performing a Fire Sequence. The Gas Valves require a relatively large amount of current, much more than is required to run the other circuitry or Transmit/Receive. If this is the case, the Control Box simply does not have enough power to operate the Gas Valves, they may not open long enough or only one valve may open. In either case, the remedy is the same: See Steps 1 and 2 above.

Connections

If your Model X-OHW is having trouble due to a bad connection, possible corrections include:

1. Ensure the Blue “X-Bee” transceiver chip (located on the Control Board) is firmly pressed down onto its header connections on the Control board.
2. If still not operational, a broken connection may have occurred somewhere else in the circuitry and will likely require repair at the Explotrain factory. Contact Explotrain at 1-850-862-5344 for return instructions.
3. Check to see if a Hardwired Fire or Arm signal is being sent into the Control Box when Powered On. If so, disconnect the hardwired input.

Transmit/Receive

If your Model X-OHW is having trouble due to transmitting or receiving problems, possible corrections include:

1. Try a different Transmitter if available. If a different Transmitter works, the current Transmitter is non-functional. Please contact Explotrain for further troubleshooting steps.
2. Ensure the Transmitter and Simulator are on the same Channel.
3. Ensure the Transmitter and Simulator X-0 IDs are compatible.
4. If the Transmitter only works at an extremely short range, i.e. less than 10 feet, check the antenna and antenna cable connections.
5. If the above steps do not work, please contact Explotrain, LLC at (850) 862-5344 to arrange for repairs and/or replacements.



Spark Plug

If your Model X-OHW is having trouble due to problems with the Spark Plug, possible corrections include:

1. Ensure the ignition wire is firmly attached to the Spark Plug.
2. Ensure the white Ground Wire coming from the Potting Box is firmly attached to the screw on the base of the Cannon.
3. Replace the Spark Plug - it may have become fouled, rusted, or damaged. Use an Accel 437S (also listed as 8197) or any short, header Spark Plug that is compatible with a small block Chevy engine. Use a 5/8" or 13/16" wrench to replace, depending on the particular spark plug. Spark plug gap is not critical, but should be about .035"
4. After replacing Spark Plug, make sure Spark Plug is firmly tightened and ignition wire firmly attached.

Gas Valves

If your Model X-OHW is having trouble due to problems with the gas Valves, possible corrections include:

1. Gas Valves may not be receiving enough power, see No Power above.
2. If Gas is flowing other than during the normal Fire Cycle the Gas Valves, it is likely that dirt or other foreign debris has been accidentally introduced into the valve(s) and are leaking. Contact Explotrain for more information.



**Thank you for purchasing your
Model X-OHW 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
information@explotrain.com**

**This manual contains information proprietary to
Explotrain, LLC.**