



**BPI OUTDOORS**  
**1685 BOGGS ROAD • SUITE 300**  
**DULUTH, GA 30096**

**[www.cva.com](http://www.cva.com)**

FORM 113A • REV. 9/13  
31035

***America's #1 Muzzleloader***

FOR CVA OPTIMA V-2 Rifle & Pistol

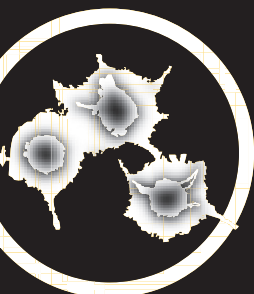
# America's #1 Muzzleloader

**VIDEO INSTRUCTIONS AVAILABLE AT**  
[www.cva.com/optimav2-101.php](http://www.cva.com/optimav2-101.php)



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Watch the  
**MUZZLELOADING BASICS**  
video at CVA.com

## OWNER'S INSTRUCTION AND SAFETY MANUAL

THIS PAMPHLET CONTAINS INFORMATION CRITICAL TO THE SAFE USE AND MAINTENANCE OF CVA MUZZLELOADING FIREARMS. YOU MUST READ THIS MATERIAL ENTIRELY AND FULLY UNDERSTAND THIS INFORMATION BEFORE YOU CAN SAFELY USE YOUR MUZZLELOADER. IF FIREARM IS LOANED OR SOLD BY A DEALER OR INDIVIDUAL, THIS BOOK MUST ACCOMPANY THE FIREARM. REPLACEMENT BOOKS ARE AVAILABLE FROM OUR FACTORY. CALL CVA CUSTOMER SERVICE AT (770) 449-4687 IF YOU HAVE ANY QUESTIONS.

**BUILT TO HUNT • SUPERIOR ACCURACY • LIFETIME WARRANTY**

**WARNING: YOU ARE RESPONSIBLE FOR FIREARM SAFETY! AS A GUN OWNER, YOU MUST ACCEPT A SET OF DEMANDING RESPONSIBILITIES. AT ALL TIMES YOU MUST HANDLE YOUR GUN WITH RESPECT FOR ITS POTENTIAL DANGERS. THE INFORMATION CONTAINED IN THIS MANUAL IS CRITICAL FOR THE PROPER USE AND CARE OF YOUR CVA GUN. DO NOT ATTEMPT TO LOAD OR FIRE YOUR GUN UNTIL YOU READ AND THOROUGHLY UNDERSTAND THIS INFORMATION.**

We at CVA would like to thank you for purchasing our product. You have our assurance that the CVA gun you have chosen has been manufactured to exacting tolerances and has passed rigid quality control standards before being shipped on to you, our customer. You must remember, however, that no amount of engineering, precision manufacturing, or safety inspections can replace the common sense and safe gun handling habits for which you are solely responsible. Some portions of this pamphlet are printed in **RED** in order to emphasize their special importance. However, this should in no way lessen the importance of the rest of this pamphlet. Even the smallest and most innocent safety violations can result in tragic loss.

**THE SAFETY MECHANISM ON YOUR FIREARM IS A MECHANICAL DEVICE. LIKE ALL MECHANICAL DEVICES THE POSSIBILITY OF FAILURE IS ALWAYS PRESENT. YOU, AND ONLY YOU, ARE RESPONSIBLE FOR SAFELY CONTROLLING THE MUZZLE OF YOUR GUN. NO MECHANICAL SAFETY SHOULD EVER BE RELIED UPON TO TAKE THE PLACE OF SAFE GUN HANDLING! MAKE SURE THAT THE MUZZLE OF YOUR GUN IS ALWAYS POINTING IN A SAFE DIRECTION.**

## **THE TEN COMMANDMENTS OF FIREARM SAFETY**

1. Always keep the gun's muzzle pointed in a safe direction.
2. Be sure of your target and what is beyond it.
3. Never rely on a gun's mechanical "safety". Keep your finger off the trigger and out of the trigger guard until you are ready to fire.
4. The gun should remain unloaded until ready to use.
5. Always wear hearing and eye protection.
6. Make sure that the barrel is clear of all obstructions before loading and shooting.
7. Handle every gun as if it were loaded.
8. Store guns and ammo separate and in a locked area.
9. Avoid alcoholic beverages and drugs before and during the use of a firearm.
10. Never bring a loaded firearm into a building or transport a loaded firearm in a vehicle of any kind.

## **SAFETY CONSIDERATIONS FOR MUZZLELOADERS**

**CAREFULLY READ THIS SECTION, AS THESE SAFETY CONCERNS ARE APPLICABLE TO MUZZLELOADERS AND, IN SOME INSTANCES, CENTERFIRE GUNS AS WELL.** If you have questions, doubts, or concerns, please call CVA Customer Service at 770-449-4687.

1. Never smoke when shooting or handling a firearm or related equipment. Ashes and/or loose sparks may cause powder or caps/primers to ignite, resulting in personal injury or death.
2. Always wear eye protection. Flying debris from the breech area and muzzle are common with any firearm.
3. Never pour powder into a muzzleloader directly from a powder can, flask, horn, or any other large volume, enclosed container. Hot ember or sparks in the barrel can cause a flash that, in turn, may cause the container to explode.
4. All powder storage containers and primers/caps should be kept well away from the shooting area. Sparks from shooting could cause accidental ignition of these materials. Follow manufacturer's instructions regarding long-term storage of these products.
5. Use only blackpowder or approved blackpowder substitutes in your muzzleloading firearms. If you have any questions regarding approved blackpowder substitutes call, write or e-mail CVA Customer Service.
6. **NEVER USE MODERN SMOKELESS POWDER IN ANY MUZZLELOADER.** The use of any amount of smokeless powder in a muzzleloader, by itself or in mixture with blackpowder or approved substitutes, will create dangerously high pressures which may, upon ignition, result in severe injury or death to the shooter or bystanders.
7. Always check to make sure your firearm is in good working order before use. Test the hammer, trigger, and breech carefully prior to loading. Check the barrel for obstructions, as any obstruction can cause the barrel to burst causing severe injury or death.
8. Use only the recommended loading data published specifically for your muzzleloader. Other models of muzzleloaders may have different powder charge and/or bullet requirements and limitations. Improper loading or overloading of a muzzleloader can result in severe injury or death.
9. Never prime or cap a muzzleloader, or load a centerfire gun until you are ready to fire. The primer/cap/cartridge should always be removed when walking, climbing trees or fences, transferring the gun from one person to another, leaving the gun unattended, etc.

10. Never lean a loaded firearm against a wall, tree, vehicle, or other surface. Any fall of a loaded gun may result in an accidental firing of the gun, which may result in severe injury or death.
11. Never transport a loaded firearm in any type of vehicle. A muzzleloader is considered loaded until powder, bullet, and primer/cap have been removed. A centerfire is considered loaded until the cartridge is removed.
12. Never give, or accept from anyone else, a loaded muzzleloader. Only the party who loaded, or witnessed the loading of, the muzzleloader should fire it. This practice will help prevent dangerous double-loading which, when fired, may result in severe injury or death.
13. Never store a loaded firearm. The cartridge, or the bullet, powder, and primer/cap should be removed and the gun cleaned prior to any storage.
14. Never load a firearm without first making sure the barrel is unloaded and unobstructed.
15. Use extreme caution when hunting from a tree stand. The accidental dropping of a firearm may cause a discharge, which could result in severe injury or death. Be sure the firearm is unloaded before raising or lowering the firearm.
16. Never rely upon a mechanical safety! Firearms should always be handled as if ready to fire, regardless of the position or condition of the mechanical safety.
17. Always use proper cleaning procedures. Firing of an improperly maintained or corroded firearm may lead to unsafe pressure conditions and/or cause the barrel to rupture resulting in severe injury or death.
18. Make sure the projectile is fully seated on the powder charge in a muzzleloader. The firing of a “short start,” or improperly seated bullet, may cause the barrel to burst resulting in severe injury or death.
19. Always keep the barrel pointed in a safe direction when loading. Never allow the barrel to point at anything that you do not wish to shoot.

The Optima V-2 muzzleloader you have purchased is one of the most advanced and easy to use guns in the muzzleloading market. This pamphlet will teach you the basics of how to operate your gun in a safe and efficient manner. Certain sections of this pamphlet are written in **RED** to stress their importance in respect to safety. Be sure you also read the safety instructions completely before loading your gun. If you sell, trade or give this gun to any other person, please make sure a copy of this pamphlet accompanies the gun. Replacement pamphlets are available from CVA Customer Service. You can contact CVA Customer Service by mail, telephone or e-mail.

**BPI OUTDOORS, INC**  
**ATTN: CUSTOMER SERVICE DEPT.**  
**1685 BOGGS ROAD • SUITE 300 • DULUTH, GA 30096**  
**770-449-4687 (8:30 TO 4:00 EST)**  
**[info@bpiguns.com](mailto:info@bpiguns.com)**

THE INFORMATION CONTAINED IN THIS PAMPHLET IS CRITICAL FOR THE PROPER USE AND CARE OF YOUR GUN. **DO NOT ATTEMPT TO LOAD OR FIRE YOUR GUN UNTIL YOU HAVE READ THIS MANUAL IN ITS ENTIRITY. FAILURE TO DO SO MAY RESULT IN ACCIDENTS THAT CAN CAUSE SERIOUS INJURY OR DEATH TO THE SHOOTER OR BY STANDERS.**

**FOR ADDITIONAL INSTRUCTIONS ON MUZZLELOADING PLEASE VISIT OUR WEB SITE AT [WWW.CVA.COM](http://WWW.CVA.COM) AND CLICK ON MUZZLELOADER BASICS. THIS ON-LINE INSTRUCTION VIDEO SUPLEMENTS THIS MANUAL AND INSURES THAT YOUR MUZZLELOADING EXPERIENCE IS SAFE AND ENJOYABLE.**

Your CVA OPTIMA V-2 has unique features that you must become familiar with. These features are illustrated in the drawing below. Please take time to become familiar with your rifle or pistol and to learn to properly manipulate the breeching lever, hammer and trigger functions before attempting to load or fire your gun.



## **GETTING STARTED**

Your Optima V-2 is a break-action muzzleloader. The barrel and receiver are joined by a pin that makes the assembly, in effect, a pivoting hinge. By pulling the breeching lever, located at the rear of the trigger guard, to the rear the barrel will pivot, or “break”, open revealing the breechplug. This design makes your gun easy to load, prime and clean. All controls are ambidextrous making your CVA Optima V-2 ideal for both right and left handed shooters. Your CVA gun utilizes a 209 shotgun shell primer to ignite the powder charge. It is fully magnum capable\*. This means that you can use the “magnum” charge of 150 grains equivalent of pelletized blackpowder substitutes. The firing mechanism utilizes a “hammer

blocking safety” design, which means that the hammer is blocked from striking the firing pin unless the trigger is fully depressed. This design will prevent the gun from firing if the hammer is accidentally dropped while uncocking.



\*See Pistol Loading Information on page 9.

After fully reading this pamphlet:

1. Remove the gun and related tools from the box.
2. Safety First! Pull the breeching lever at the rear of the trigger guard until the action unlocks. Pivot the barrel forward to open the breech and expose the breechplug. Remove the breechplug by turning counterclockwise by hand until it comes out. Verify the gun is unloaded by looking through the barrel. If you cannot see light through the barrel you must assume it is loaded. Use the ramrod and jag to push the load or obstruction out of the barrel.
3. Check all mechanical features of the rifle to be sure all are operating correctly, including opening and closing the breech, cocking and releasing the hammer, checking the function of the firing pin assembly (with the breech open pull the trigger back and then push the hammer forward – the firing pin should be visible only when the hammer is forward and should recess back into the frame when the hammer is released).
4. Clean the shipping grease from the inside of the barrel.
5. Apply CVA Breechplug Grease or high temperature anti-seize compound to the breechplug threads and replace it in the barrel. Tighten hand-tight only. Over tightening the breechplug can cause it to stick.
6. Make sure you understand all aspects of this pamphlet. Get all questions and doubts answered prior to loading or firing.
7. Protect your eyes and ears. Always wear adequate eye and hearing protection.



## **FOR YOUR SAFETY AND THE SAFETY OF OTHERS:**

CVA encourages you to take a certified hunter's safety course before using this gun or any other firearm. Consult the Game and Fish authorities in your area or your local sporting goods dealer for information on courses available. Even if you do not intend to hunt game animals, the information and training gained from taking a hunter's safety course can help in preventing dangerous or fatal accidents from happening.

Discharging firearms in a poorly ventilated area and/or handling ammunition may cause exposure to lead or lead compounds. According to the state of California, exposure to lead or lead compounds may cause cancer, birth defects, or other reproductive harm. Make sure that you have proper ventilation at all times. Be sure to wash your hands thoroughly after shooting, handling ammunition or cleaning your firearms. Do not eat or smoke during these activities.

## **BASIC MUZZLELOADING NEEDS & LOADING ACCESSORIES**

- Blackpowder or an approved blackpowder substitute **NEVER use any amount of modern smokeless powder in any muzzleloader.**
- Projectiles- PowerBelt™ Bullets, sabot bullets, or conical bullets
- Ignition Source- Modern 209 primers made for muzzleloaders or shotshells
- Powder Flask- For carrying a supply of loose powder (not required for pelletized powder)
- Bullet Starter- To start the bullet into the bore
- Range Rod- To make loading at the range more convenient. Also used for cleaning.
- Speed Loaders- A convenient way to carry extra pre-measured powder charges and bullets for field loading.
- Safety Equipment- Good quality safety glasses and hearing protection.

## **CLEANING ACCESSORIES**

CVA's Barrel Blaster™ line of cleaning solvents and accessories is highly recommended. Refer to your CVA catalog or visit: [www.cva.com](http://www.cva.com) for details.



Barrel Brush - To loosen and remove hard deposits and fouling.

Cleaning Solvent - For easy cleaning of the bore and external metal surfaces.

Patches - Both dry and solvent-soaked for swabbing the bore, wiping the external surfaces and drying the gun.

Jag - To retain the patch on the cleaning rod or range rod. A jag is permanently attached to one end of the under barrel ramrod.

CVA Barrel Blaster™ Rust Prevent Patches - For final protection of the bore. Rust Prevent Patches are also good for wiping the external metal surfaces to prevent rust and corrosion.

## **PROPELLANTS**

**NEVER USE ANY QUANTITY OF SMOKELESS POWDER IN ANY MUZZLELOADER!** The use of smokeless powder in your muzzleloader will create dangerously high pressures upon ignition which will likely lead to severe injury or death to the shooter and bystanders. The use of smokeless powder will immediately void the warranty.

**BLACKPOWDER** - (Important! The term “blackpowder” refers to the formulation of the propellant, not the color. Most of the smokeless powders used in modern cartridge ammunition are also black in color but will cause dangerously high pressures.) Blackpowder is available in several granulations which are rated according to the average size of each particle of powder. **ONLY USE “FFG” GRANULATED BLACKPOWDER IN YOUR CVA BREAK ACTION Gun.** The use of other granulations may result in improper burning or higher pressures. The use of genuine blackpowder is less common today due to tight regulations regarding its storage and transportation.

**BLACKPOWDER SUBSTITUTES** - Safer and cleaner-burning substitutes for blackpowder have been developed and these are perfectly suitable for your CVA muzzleloader. Some of the popular brands are Hodgdon Powder Company’s Pyrodex™ and Triple Seven™, IMR White Hots™, Western Powder’s Blackhorn™, and American Pioneer Powder™. Some of these are available in both granular and pelletized form. An important thing to remember is that individual guns will perform differently with the same powder and bullet combinations. Each of the blackpowder substitutes have their own characteristics and, therefore, CVA recommends that you try several powder and bullet combinations to determine which one gives you the performance you are looking for. Please refer to the manufacturer’s written instructions for the specific propellant you are using. If you have technical questions regarding the propellant you are using, please contact the manufacturer’s customer service or technical department listed on the product label.

## PROJECTILES

**POWERBELT™ BULLETS** - PowerBelt™ Bullets are conical bullets with a patented plastic base designed to seal the bore and trap the propellant's pressure. This provides consistent velocities and unsurpassed accuracy. Unlike sabots, however, the PowerBelt™ bullet is easy to load and leaves no plastic residue to foul the barrel. PowerBelt™ bullets are also full caliber diameter to deliver the maximum energy possible out of a muzzleloader. All weights of PowerBelt™ bullets can be used in your CVA gun. PowerBelt™ bullets are highly recommended for use in your CVA gun.

**SABOTED BULLETS** - The sabot is a plastic sleeve that is utilized to hold a smaller-than-bore diameter bullet tightly in the bore. The rifling in the bore engages the plastic sabot rather than the bullet itself. Saboted bullets from several manufacturers have been tested and found to provide acceptable accuracy in CVA muzzleloaders when used in accordance with the manufacturer's instructions. However, most sabots leave a heavy plastic residue in the bore requiring cleaning of the bore after every shot. This plastic residue along with the extremely tight fit of most sabots makes loading for quick follow-up shots very difficult.

**LEAD CONICALS** - The lead conical is one of the oldest designs around for muzzleloading guns. These bullets are typically heavy in weight and feature a hollow base that expands with pressure to seal the bore. Although lacking in some modern features they remain effective on short to medium range shots and are ideal for use in states that do not allow projectiles with plastic parts. Do not use lead conical bullets weighing over 400 grains in your CVA gun. Lead conical bullets are not recommended for use with pelletized powder.

**PRIMERS** - The number 209 shotgun primer has become the most common ignition source for inline muzzleloaders. This popularity has prompted several manufacturers to develop 209 primers specifically for the muzzleloading market. Choosing one of these specialty primers can result in better accuracy and a cleaner shooting barrel.

## WHAT IS THE BEST BULLET AND POWDER COMBINATION FOR MY GUN?

Several blackpowder substitutes are available on the market. Each has different properties, advantages and disadvantages. You may want to try several to find the best one for you based on your individual needs. However, after extensive and long-term testing, CVA has found that, in terms of accuracy, cleanliness, and ease of use, IMR®WhiteHots® is the best performing and most highly recommended propellant for use in CVA muzzleloaders. Use in conjunction with PowerBelt™ Bullets for absolute best results.

## **MINIMUM AND MAXIMUM LOADS FOR OPTIMA V-2 RIFLE**

CVA recommends a minimum of 50 grains, by volume, of blackpowder or blackpowder substitute in your CVA muzzleloader rifle. The maximum load in CVA break-action guns, and any other CVA in-line gun designated as a “Magnum” is 150 grains by volume. This maximum load is generally known as the “magnum” load and is best suited for pelletized powder due to the more efficient burning characteristics of the powder pellets. Magnum loads of loose powder may be shot but are not recommended because of their inefficient and incomplete burning of the powder. Some bullet designs depend on the thrust of the powder charge to expand, or obdurate, the bullet inside the bore for best accuracy. Loads under 50 grains cannot be depended on to do this. In many cases lighter bullets are more sensitive to this than heavier bullets and often require heavy powder charges to produce the best accuracy. For those who wish to shoot moderate powder charges of 90 to 120 grains the heavier bullets generally give better results.

## **MINIMUM AND MAXIMUM LOADS FOR OPTIMA V-2 PISTOL**

CVA recommends a minimum of 50 grains, by volume, of blackpowder or blackpowder substitute in your CVA muzzleloader pistol. Although the Optima pistol shares a similar action and barrel with Optima rifle and is equally strong, the 150 grain “magnum” charge is not appropriate due to the short barrel length. In fact, the extra unburned powder can actually reduce the velocity of the bullet. Testing of various powders and pellets, using a chronograph for accurate velocity measurements, has shown that the highest velocities were attained with 90 to 100 grains of loose or 100 grains of pelletized powder.

## **BLACKHORN™ BREECHPLUG**

Blackhorn™, a blackpowder substitute powder from Western Powders, is clean burning and delivers consistent and uniform velocities. Top performance with this powder demands a slightly different configuration of the breechplug face for reliable ignition. CVA, with considerable input from Western Powders, is offering a specialized breechplug designed especially for this powder at a reasonable cost through the Customer Service Department. This plug is only for CVA muzzleloaders featuring the Quick Release Breech Plug. This plug can be used with all brands of loose powder. The part number for this plug is:

Optima, Wolf and Accura - AC1611BH

Apex muzzleloaders- AC1610BH

## **LOADING YOUR CVA OPTIMA V-2**

Before loading you must make sure that the barrel is unloaded and free of obstructions. The best way is to remove the breechplug and look through the barrel. If you cannot see light through the barrel there is a load or other obstruction that must be removed. Use the ramrod to push the load or obstruction out of the barrel.

Check the mechanical features of the rifle to be sure all are operating correctly, including opening and closing the breech, cocking and releasing the hammer, and checking the function of the firing pin assembly (with the breech open pull the trigger back and then push the hammer forward – the firing pin should be visible only when the hammer is pressed forward and should recess back into the frame when the hammer is released). **If any of these mechanisms are not functioning correctly, do not load or attempt to fire the rifle, as doing so may be dangerous to the shooter or to bystanders.**

If your Optima V-2 has not been shot since the last cleaning, it is recommended that you fire at least 2 primers without a load in the barrel. This assures that the breech is clear and dry. If you are using loose powder, also called granulated powder, carefully pour the powder into a powder measure that is set for the amount of powder you wish to use. Pour the powder from the measure into the barrel. Never pour powder directly from a can or flask into the barrel. It is possible for a small spark or ember in the barrel to ignite the new powder as it is poured into the barrel causing the can or flask to explode. If you are using pelletized powder, also referred to in some brands as powder sticks, drop the required number into the barrel. Read the manufacturer's instructions to see if your brand requires one end to be inserted first.

After loading the powder you must load and seat the bullet. Your CVA features a Bullet Guiding Muzzle™. This is a short unrifled section at the muzzle that allows easy insertion of the bullet into the bore. Press the bullet into this section with your thumb. Use a bullet starter to push the bullet into the rifling. Insert the ramrod or range rod into the barrel and push the bullet down the barrel until firmly seated on the powder charge. It is recommended that you place some kind of a mark on the rod that is even with the muzzle. This can be used as a reference point anytime this same load is used to be certain the bullet is fully seated in the barrel. After loading the powder and bullet, pull the breeching lever to the rear to open the action. Place a number 209 primer into the breechplug and close the action with a firm “snap”. You are now ready to shoot.

## **SHOOTING YOUR CVA OPTIMA V-2**

Always judge your target carefully. Know what is beyond the target in case of a miss or full penetration. You should always place the target in front of a backstop of dirt or heavy timbers when target shooting. When hunting, be sure of what is beyond the target. Do not shoot if your bullet may enter a camp, cross a road, or head toward a house or building. With the muzzle pointed in a safe direction, pull the hammer back until it stops. Carefully aim the gun at the intended target and pull the trigger. When reloading it is recommended that you swab the bore between shots with a slightly damp patch. This will remove the bulk of

the fouling from the last shot, making your loading more consistent and improving accuracy. It also helps to assure that there is no remaining ember or hot spot that may ignite the next powder charge prematurely.

If you decide not to fire your rifle you must lower the hammer to a safe position. To do so correctly, point the gun in a safe direction, hold the hammer firmly in the rearward position with your thumb and pull the trigger. **As you begin lowering the hammer remove your finger from the trigger.** Continue to lower the hammer gently until it stops. **The hammer blocking safety will not engage if the trigger remains in the rearward position while lowering the hammer.**

### **HAMMER SPUR**

CVA Optima V-2 come with a reversible hammer spur. Please note that the hammer spur is attached with left-hand threads. Turn the hammer spur in a clockwise direction to remove it. Once you decide which side of the hammer you prefer, clean the threads and use a low grade thread sealant or a small drop of household white glue to secure it in position.

### **PALM SAVER® RAMROD**

Your CVA comes with our PalmSaver loading aid in the accessory kit. The PalmSaver provides you with a broad, comfortable surface for pushing the bullet down the bore. To use the PalmSaver, turn it onto the threaded jag on the ramrod. It can stay in place when shooting the gun. If you need to use the jag in the field, simply remove the PalmSaver. Your CVA also comes with an extended jag that can be attached to the opposite end of the rod. Doing so provides you with an efficient range rod for loading and cleaning your barrel. ***TO INSURE PROPER SEATING OF THE BULLET WITHOUT THE EXTENDED JAG IN PLACE, USE THE PALMSAVER ONLY WITH LOADS OF 100 TO 150 GRAINS OF POWDER.***



### **CLEANING YOUR CVA OPTIMA V-2**

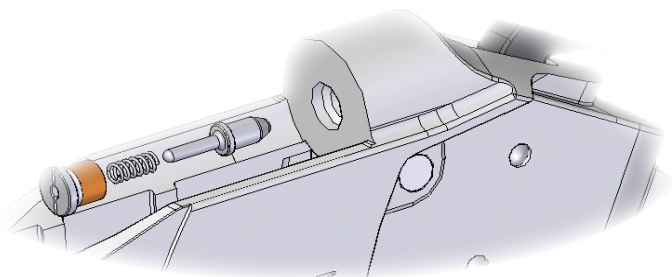
Due to the corrosive nature of all muzzleloading powders you must make cleaning a top priority as soon after shooting as possible. Neglecting this responsibility will likely result in a damaged barrel. An important thing to remember is that proper cleaning is just as important for stainless steel guns as it is for blued steel or nickel plated guns. Although

stainless steel guns are more resistant to rust and corrosion for a short time, they will eventually rust and corrode just as will blued steel if not properly maintained.

## **CLEANING PROCEDURE**

1. Using a properly fitting screwdriver, remove the screw from the center of the forend. Gently pull the forend off of the barrel.
2. Pull the breeching lever to the rear and open the action. Without the forend in place the barrel will pivot forward and off of the action.
3. Turn the breechplug in a counter-clockwise direction and remove. Wet the breechplug thoroughly with cleaning solvent and set aside.
4. Using a jag on a cleaning rod, range rod, or extended ram rod, push a patch or two wet with water through the barrel to remove the bulk of the fouling from the bore.
5. Place a properly fitting bore brush on the rod and make several full-length strokes through the barrel. The brush should be wet with solvent for this step. Using a properly fitting screwdriver, remove the screw from the center of the forend. Gently pull the forend off of the barrel.
6. Remove the brush from the rod and use the jag to push several patches damp with solvent through the bore. Allow the solvent to work for a minute or two and follow with dry, clean patches. Repeat until the barrel is clean. Use a good quality non-petroleum gun oil to protect the bore. CVA Barrel Blaster Rust Prevent Patches are excellent for this.
7. Take the solvent-soaked breechplug and wipe all surfaces, including the threads, with patches or a rag. Make sure the front is clean as well as the primer pocket and flash hole (the small hole through the center of the plug). Cotton swabs, pipe cleaners and a nipple pick are appropriate here. Generously apply breechplug grease or high temperature anti-seize to the breechplug threads and install into the barrel finger tight (over tightening the breechplug can lead to a breechplug that is difficult or impossible to remove).
8. Use a patch wet with solvent to scrub the breechface and other action areas that you can reach. Cotton swabs can be used here to do a good job. Wipe dry with a clean patch or rag and apply rust preventative.
9. Using a properly fitting screwdriver remove the firing pin bushing from the front of the breechface. The firing pin and spring will drop out. Clean these parts and the firing pin recess thoroughly, lube and reinstall. Cotton swabs are good to use here as well. A light coating of breechplug grease on the bushing threads is a good idea. Then, check the firing pin assembly to make sure it is functioning correctly by pulling the trigger rearward and pressing the hammer forward. The firing pin should be visible only when the hammer is pressed all the way forward and it should recess into the frame once the hammer is released – meaning that the firing pin return spring is installed correctly and working properly. If the firing pin assembly does not work as described, do not attempt to fire the gun. **Cleaning**

the firing pin assembly is a very important part of maintaining your gun. Not doing so can result in corrosion of the internal parts, which can cause the firing pin to seize in place, either on the inside or the outside of the firing pin housing. If the firing pin is seized inside of the housing the pin will not strike the cap and the gun will not fire. If the firing pin is seized in the external position the pin can drag on the cap when the breech is closed, which could bend the firing pin or possibly even fire the cap. If your firing pin is ever seized in the external position, **DO NOT LOAD THE GUN OR ATTEMPT TO FIRE IT.**



10. Reassemble the gun and check all mechanical functions. Wipe the entire gun with a rust preventative.
11. Failure to properly maintain your CVA gun can cause damage to the bore and outside surfaces of the barrel. It can also cause your breechplug to become stuck in place. If this happens pad a pair of pliers with a rag, leather or heavy cardboard to assist in removal. If this does not work, please send the barrel to CVA for proper removal.

## **SIGHT ADJUSTING AND SCOPE MOUNTING**

Some models come from the factory equipped with fiber-optic open sights. To adjust the sights to the bullet's point of impact you should fire at least 2 shots at the target before making adjustments. Adjust your sights to the center of the group. The "rule of thumb" to remember is that you move the rear sight the same direction that your bullet hit must move. In other words, if you need your group to go to the right, move the rear sight to the right. If you need your group to go up, move the rear sight up. Your barrel is drilled and tapped for a scope mount. A telescopic scope can assist in accurate bullet placement during target shooting and hunting (in areas where legal, check your state's regulations). Carefully check the fit of the selected scope base to your barrel. Although the base you select may have come with instructions for installation, please also read the recommendations below. CVA uses and highly recommends DuraSight scope mounts and rings.

1. Examine the scope mount holes in the barrel. Each hole should have full, sharp threads. Remove any filler screws or other matter from the holes. Clean the threads with a light solvent such as alcohol.



2. Examine each of the mounting screws. Look for bent or broken threads. Check each screw in a hole to insure that the screw threads easily into place. Clean the threads with a light solvent.
3. Thread locking compounds such as Loctite™ 242 are recommended. If you desire to use a thread locking product use as little as possible. The best way to use is to apply a small bit to the first 2 or 3 threads of the screw. Placing compound directly into the screw hole nearly always results in the compound being forced out and under the base, resulting in uneven contact between the base and barrel and possible accuracy problems.
4. Place the base onto the barrel and fully tighten one screw. Check to see if the base is held tightly to the barrel. If it is, loosen the screw and install another. Check each screw individually in this manner to make sure that each screw is doing its job. If you find a screw that is not securing the base on its own, investigate the cause and correct before moving on.
5. When all screws have been tested, secure the base by tightening all screws evenly. Rule of thumb - if your fingers hurt or the torx wrench is bending you are too tight.
6. Carefully mount the rings to the scope following the manufacturer's recommendations.

In many cases you must remove the rear sight when installing the scope. This can be avoided if desired by using a scope mounting system of the "see through" design. However, for best results, the scope should be mounted as low to the barrel as possible.

## **REPAIR AND SERVICE**

In the case that your CVA gun needs repair or service we recommend that you return it postage paid to our facility. This will assure that your gun is worked on by trained, qualified gunsmiths.

Additional repair centers may be found at:

[www.cva.com/repaircenters.php](http://www.cva.com/repaircenters.php)

For assistance in determining the model gun you have visit:

<http://www.cva.com/returns.php>

For the best service please follow these steps:

1. Contact CVA Customer Service by phone, 770-449-4687, or email, [www.cva.com/contact.php](http://www.cva.com/contact.php)
2. A return Authorization will be issued and emailed to you along with instructions on how you can make a UPS label on-line.
3. Make sure your gun is cleaned and unloaded prior to packing and shipping.
4. Pack the gun securely and be sure to enclose the Return Authorizations form. Attach the UPS shipping label to the box and give to any UPS agent, UPS Store or UPS Hub.



5. The address for CVA Repair is:

BPI OUTDOORS, INC  
ATTN: REPAIR DEPARTMENT  
1685 BOGGS ROAD • SUITE 300 • DULUTH, GA 30096

If you do not have email a Return Authorization can be mailed to you. You must first contact CVA Customer Service by phone, 770-440-4687.

Your repair can be sent directly to CVA without a Return Authorization. However, delays in handling may occur.

Many times small problems and concerns can be addressed with CVA Customer Service and taken care of without having to return the gun.

Most parts are available through CVA Customer Service at a reasonable cost. However, some internal frame parts must be fitted by our gunsmith and are only available as an installed part.

#### **LIMITED LIFETIME WARRANTY**

CVA warrants all factory-finished firearms to be free of defects in workmanship or materials for the lifetime of the firearm. This Limited Lifetime Warranty only applies to the original consumer owner. This warranty is put into effect by the return of the authorized warranty card within 15 days of purchase and is not transferable. To save time and postage, the warranty information may also be transmitted electronically via our web site at [www.cva.com](http://www.cva.com). Your serial number is required for warranty registration. It is located at the bottom of the barrel under the forearm.

Any covered CVA firearm or part thereof that is returned postage paid to the Repair Center will be repaired or replaced to our commercial standard, free of charge, and returned to the consumer postage prepaid. This warranty does not cover damage to any structures, buildings, vehicles, persons or animals, or any other damage resulting from careless handling, improper loading, rust or corrosion, neglect, improper maintenance or customer alterations.

CVA reserves the right to refuse to repair or replace any firearm or parts thereof damaged by any of the above. The warranty does not cover normal wear of any part, metal or stock finish, cost of inconvenience due to product failure, or transportation to the Repair Center.

**PLEASE VERIFY THAT THE GUN IS UNLOADED BEFORE SHIPPING!** If your gun is loaded and you don't know what to do please call CVA Customer Service for instructions. It is not only unsafe and irresponsible to ship a loaded gun; *it is a violation of Federal Law that will be reported.* **THERE WILL BE AN ADDITIONAL CHARGE TO UNLOAD THE GUN.**

This warranty gives you certain specific legal rights. You may also have other rights, which vary from state to state. This warranty is void if:

- **Any propellant other than the correct type of blackpowder or blackpowder substitute is used.**
- **Unauthorized repair work has been performed by the owner or a CVA recommended maximum powder charge or bullet weight has been exceeded.**
- **Any form of plastic patch has been used (sabots and PowerBelts™ not included).**
- **Gun is returned in an abused or neglected condition (rusty, corroded, etc.).**
- **Any failures concerning any non-CVA OEM parts such as a non-CVA accessory breechplug, repair part or barrel.**

## **VOLUNTARY RECALL**

In August of 1997, CVA implemented a Voluntary Recall of all in-line gun models with serial numbers ending in -95 or -96.

**Example of a recalled serial number: 61-13-xxxxxx-95**

If you, or someone you know, have a CVA in-line with such a serial number, do not use or allow anyone else to use the gun under any circumstances. Call CVA immediately at 770-449-4687 for complete details and instructions on how to receive a replacement gun.

In May of 1999, BPI Outdoors purchased the assets of Connecticut Valley Arms, Inc. and now operates under the trade name of Connecticut Valley Arms and / or CVA. Any claims related to the above-described Voluntary Recall should be addressed to Connecticut Valley Arms, Inc., not to BPI Outdoors. BPI Outdoors assumes no responsibility for any products manufactured or sold prior to January 1, 1998.