Buckhorn and Elkhorn In-Line Rifle Warranty Information

This book contains information critical to the safe use and maintenance of Connecticut Valley Arms 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.

Buckhorn & Elkhorn In-Line Rifles

Model No. _____ Serial No. _____

Caliber _____ Date Purchased _____

Type of Gun _____

Warranty Information

WARNING

IF HANDLED IMPROPERLY FIREARMS ARE DANGEROUS. READ AND FOLLOW ALL "CAUTIONS", "CAUTION" AND WARNINGS OF "DANGER" TO AVOID SERIOUS INJURY AND/OR DEATH AND/OR PROPERTY DAMAGE.

Call CVA Customer Service at 770-449-4687 if you have any questions or visit us on the Internet at: www.cva.com or E-mail us at: info@cva.com

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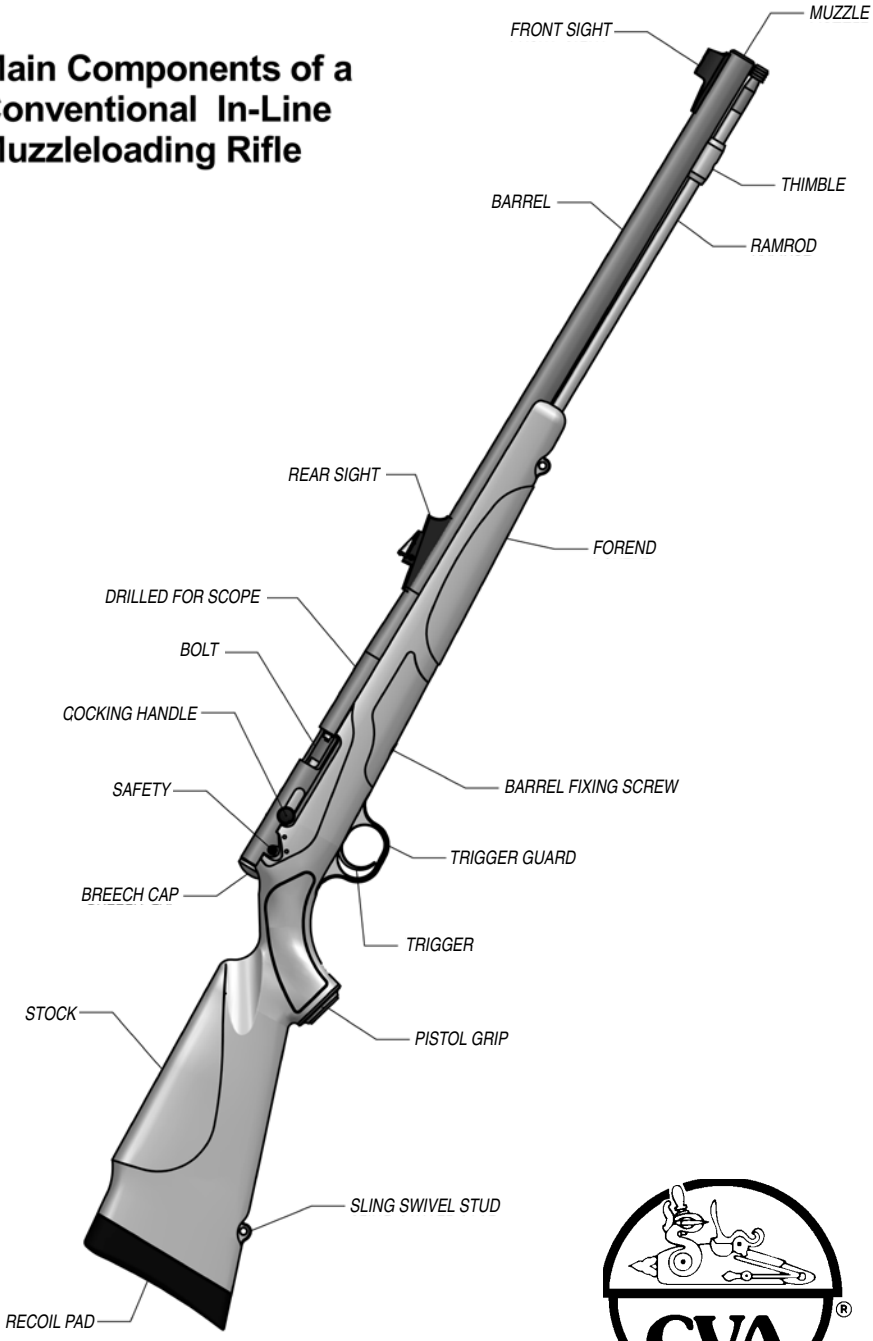
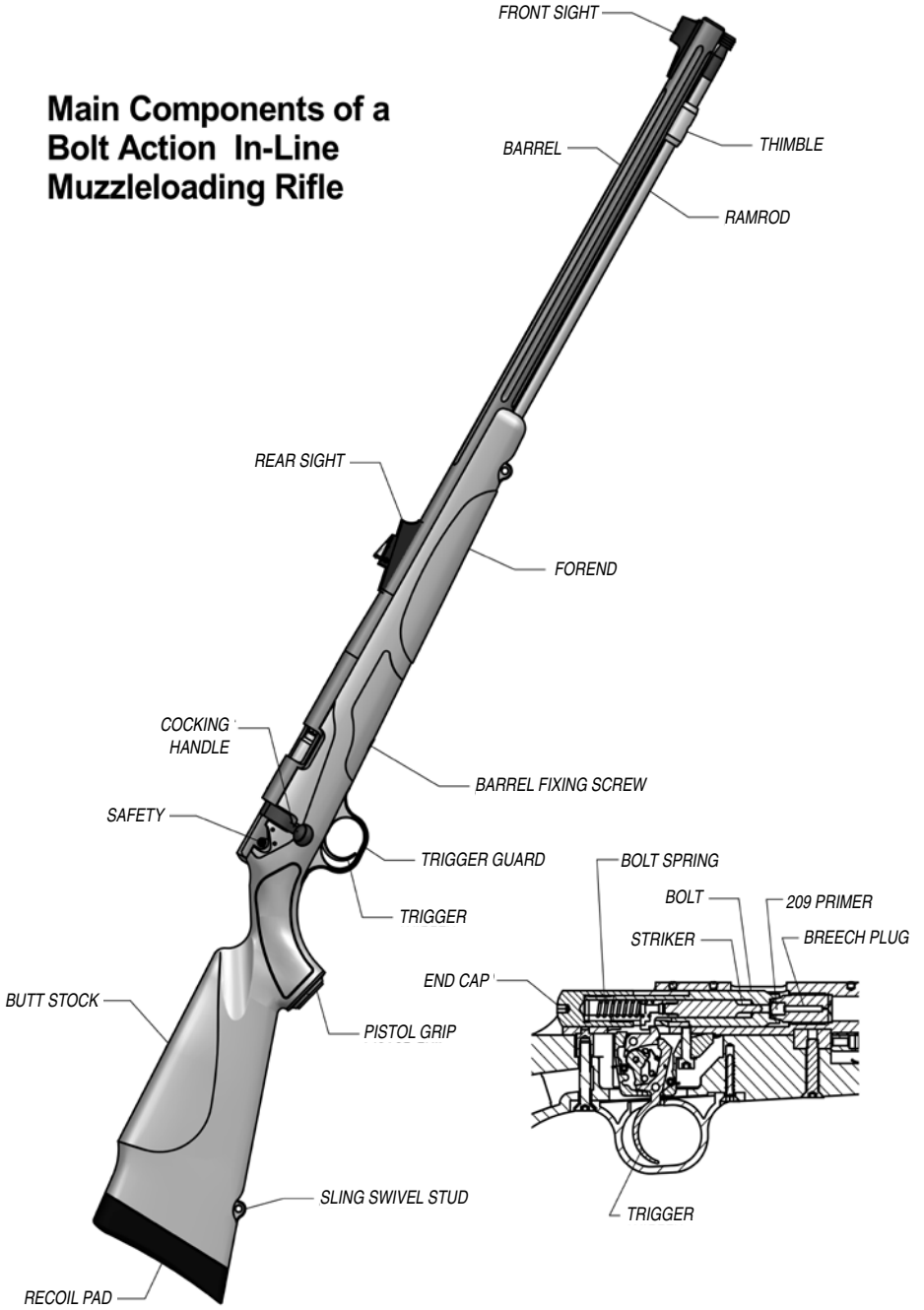


CVA®

Main Components of a Bolt Action In-Line Muzzleloading Rifle



WARNING: THE INFORMATION CONTAINED IN THIS MANUAL IS CRITICAL FOR THE PROPER USE AND CARE OF YOUR FIREARM. DO NOT ATTEMPT TO LOAD OR FIRE YOUR MUZZLELOADER UNTIL YOU HAVE READ AND UNDERSTAND THE INFORMATION DESCRIBED IN THIS MANUAL.

All muzzleloading firearms, including In-Lines, are faithful to the original basic designs. For this reason, blackpowder guns cannot be made with many of the refinements and features that are standard on modern cartridge firearms. Shooters must remember that even now, despite the modern appearance of In-Line design rifles, there is no way to build a muzzleloader that absolves the user from the need to use the special safety precautions and good judgement unique to all muzzleloading firearms. When handled properly, a muzzleloader is a safe and enjoyable firearm for shooting and hunting. But, if abused, harmful consequences can result. Treat this muzzleloading firearm with the full respect due any firearm.

NOTE: If after reading the instructions, cautions, and dangers contained in this manual, you are not willing to accept the responsibilities involved in the safe handling and shooting of a muzzleloader, return the firearm in its entirety to the place of purchase. If you have any questions about safe use of your CVA firearm, write, call, or e-mail our customer service department at 5988 Peachtree Corners East, Norcross, Georgia 30071; (770) 449-4687; info@cva.com.

If you sell, trade, or give this firearm to any other person - this owner's manual must accompany the firearm. Replacement books are available from CVA.

A. INTRODUCTION TO IN-LINE MUZZLELOADERS

In-Line design muzzleloaders are so described due to the fact that the ignition source (#11 percussion cap, musket cap or modern primer) is located directly behind (or, in line with) the propellant charge. By contrast, with Sidelock design muzzleloaders the ignition source is positioned to the side of the propellant charge.

This manual addresses two rifles in the CVA line. The first is a conventional in-line rifle, the Buckhorn. The Buckhorn features several important upgrades over previous in-line rifles of this type including 2 barrel fixing screws, an ergonomic synthetic stock with a Crush Zone® recoil pad, fiber optic sights, and an improved trigger mechanism with a thumb operated safety.

The second rifle, available primarily in the Western markets, is the Elkhorn. This bolt action in-line rifle shares all of the features of the Buckhorn plus a new bolt action that incorporates automatic extraction and ejection of the spent primer.

All CVA bolt action In-Lines and any year 2001+ conventional In-lines (Eclipse, Stag Horn or Buckhorn) are capable of handling a "magnum" charge of up to 150-grains when using pelletized powder. These "magnum capable" guns can be identified by the one-piece barrel construction, a se-

rial number ending in 01, 02, 03, etc. and the designation "magnum" on the barrel. Such "magnum" loads should never be fired in CVA conventional In-Lines that do not feature the one-piece Monoblock barrel design.

B. GETTING STARTED

1. Safety First - Verify gun is unloaded.
2. Assemble gun.
3. Check all functions.
4. Remove breech plug.
   Clean and check entire gun.
   Apply CVA breech plug/nipple grease or anti-seize compound to breech plug threads.
5. Clean barrel.
6. Replace breech plug until snug (do not overtighten).
7. Read and study instruction manual.
8. Understand terminology & proceedures.
9. Get all questions answered.

For Safety: CVA encourages that you take a certified hunter's safety course before using this muzzleloader or any other firearm. Consult your local Game & Fish authorities, The National Muzzleloading Rifle Association or your local sporting goods dealer for information on the courses available.

C. TEN COMMANDMENTS OF FIREARM SAFETY

1. Always keep the gun muzzle pointed in a safe direction and never pull it towards you by the muzzle.
2. Be sure of your target and beyond.
3. Never rely on a gun's mechanical "safety".
4. Gun should be unloaded until ready to use.
5. Always wear eye and ear protection.
6. The barrel should be clear of obstruction before shooting.
7. Handle every gun as if it is loaded.
8. Keep guns and ammo separate and in locked storage.
9. Avoid alcoholic beverages and drugs before and during use of a firearm.
10. Do not alter or modify your firearm. Have your firearm checked regularly by a competent gunsmith. Make sure all parts work properly.

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

D. SAFETY CONSIDERATIONS UNIQUE TO MUZZLELOADERS

1. Never smoke when shooting or handling a muzzleloader or related equipment. Ashes and/or loose sparks may cause powder or caps to ignite, resulting in personal injury or death.
2. Always wear eye protection. Flying debris from the breech area and muzzle are always a possibility with any muzzleloader.
3. Never pour powder into a muzzleloader directly from a flask, horn or any large volume, enclosed container. Hot embers in the barrel could cause the container to explode.
4. All powder storage containers and percussion caps should be kept well away from the area where shooting is to be conducted. Sparks from shooting can cause accidental ignition of these devices. Follow all manufacturers instructions for long term storage of powder, percussion caps and primers.
5. Use only Blackpowder or an approved blackpowder substitute in your muzzleloading firearms. The only approved blackpowder substitutes are Pyrodex and Pyrodex Pellets, Triple 7 Powder & Triple 7 Pellets, Pioneer Powder & Pioneer Powder Stix, Clean Shot Powder & Clean Shot Pellets, and Clear Shot powder. **NEVER USE MODERN SMOKELESS POWDER IN ANY MUZZLELOADER. The use of any amount of smokeless powder in a muzzleloader will create dangerously high pressures upon ignition, may result in severe injury or death to the shooter and/or bystanders, and will void the warranty.**
6. Always check to ensure that your muzzleloader is in good working condi-tion before use. Test the bolt and safety mechanisms carefully prior to loading. Check the barrel for any obstruction as any blockage may cause the gun to explode.
7. **Use only recommended loading data for the particular model of rifle in use. Different models have different powder charge and projectile capabilities. Improper loading or overloading of a muzzleloading firearm may result in severe injury or death.**
8. Never prime or cap a firearm until you are ready to fire. Primer/cap should always be removed when walking, climbing trees or fences, transferring the gun from one person to another, leaving the gun unattended, etc.
9. Never lean or rest a loaded muzzleloader against a tree, wall, vehicle or other surface. Any fall of the loaded gun may cause accidental discharge resulting in severe injury or death to bystanders.
10. Never transport a loaded muzzleloader in any type of vehicle. A muzzleloader is considered loaded until powder, bullet and percussion cap are removed.
11. Never exchange a loaded muzzleloader with any other person. Only the party who personally loaded or witnessed the loading of the muzzleloader should fire it. This practice will help prevent overloading or

doubleloading, which may cause severe injury or death.

12. Never store a loaded muzzleloader. Muzzleloaders should be unloaded and cleaned (including Bolt Assembly) prior to any storage.
13. Never load a muzzleloader without first making sure that it is unloaded.
14. Exercise extreme caution when hunting from treestands with muzzleloaders. The dropping of a loaded muzzleloader may cause accidental discharge leading to severe injury or death. Be sure the primer/cap is removed whenever raising or lowering the firearm.
15. Never allow the hammer or bolt of a muzzleloader to rest against the cap. Any impact to the hammer or bolt could cause accidental discharge.
16. Never rely upon a mechanical safety. Muzzleloaders should always be handled as if ready to fire, regardless of the safety systems employed.
17. Always use proper cleaning procedures. Firing of an improperly maintained muzzleloader may lead to unsafe pressure conditions, resulting in severe injury or death.
18. Make sure that the projectile is firmly seated against the powder charge. "Short starting" of the projectile may cause the gun to explode.
19. Always keep the muzzle of the gun pointed in a safe direction while loading. Never lean over the muzzle while loading.

E. SPECIFIC CAUTIONS/RECOMMENDATIONS FOR THE USE OF CVA IN-LINE MUZZLELOADING FIREARMS

YOU ARE RESPONSIBLE FOR FIREARM SAFETY! As a gun owner, you accept a set of demanding responsibilities. At all times handle your muzzleloader with intense respect for its firepower and potential danger. Read and understand the functions and terminology explained in this book before attempting to use your CVA muzzleloader.

1. When selecting powder loads be sure to use the correct loading data (Section I) for your particular model of CVA In-Line.
2. "Magnum" loads for CVA in-lines are safe only when using pelletized powder. "Magnum" loads of loose blackpowder or Pyrodex are inefficient and are not recommended. All current CVA in-line rifles, all CVA bolt actions, and year 2001 and later conventional in-line models are approved for pelletized powder "magnum" loads in excess of 100 grains.
3. Always follow recommended loading data when selecting bullet type and weight. When using saboted bullets and pelletized powder, maximum bullet weight should not exceed 300 grains. With loose powder loads, conical lead bullets should never exceed 400 grains. Heavier bullets may produce dangerously high pressure levels, possibly resulting in explosion of the gun and severe injury to the shooter and bystanders.
4. Always use Musket Caps and the CVA Musket Cap Nipple (AC1425) or modern #209 Primer Ignition when firing pelletized powder or "magnum"

loads. The extra fire to the charge ensures efficient burn of the entire charge.

5. PowerBelt Bullets are recommended when using pelletized powder. PowerBelt Bullets provide the tight gas seal necessary for efficient burn of the entire pellet charge. Because of their design and precise tolerances, all weights of PowerBelt Bullets are acceptable for use in CVA in-line rifles.
6. For maximum accuracy when shooting saboted bullets, the barrel must be cleaned of powder fouling and plastic residue after each shot. PowerBelt Bullets do not require cleaning after every shot. When using PowerBelt Bullets, you can clean every 4 to 5 shots without compromising accuracy.
7. Round ball and patch loads are not recommended for CVA In-Line rifles. The fast rate of rifling twist (1:28) associated with CVA In-Lines may not provide optimum accuracy when using patched round ball loads.
8. Never use modern smokeless powder, or any mix of smokeless powder, in muzzleloaders. Such improper loading of the rifle may result in an explosion of the gun, causing severe injury or death to the shooter and by-standers.
9. Never use a "Poly Patch" in any CVA rifle.

F. BASIC ACCESSORIES FOR A MUZZLELOADER

1. LOADING ACCESSORIES

   Propellant - Blackpowder or approved synthetic substitute such as Pyrodex, Triple 7, Clean Shot or Clear Shot. NEVER USE MODERN SMOKELESS POWDER.

   Projectile - PowerBelt Bullet, conical bullet, or saboted bullet.

   Ignition Source - Percussion Cap, Musket Cap, or Modern 209 Primer.

   Powder Flask - To transport and dispense powder (not required with the use of pelletized powder)

   Powder Measure - To measure correct powder charge (not required with the use of pelletized powder)

   Bullet Starter - To "start" bullet down the barrel

   Capper - To carry and dispense percussion caps or 209 primers
2. CLEANING ACCESSORIES

   Solvent - Cleaning solution

   Patches - For cleaning inside of barrel

   Nipple Wrench - For installing and removing nipple

   Breech Plug Wrench - For removing breech plug and/or nipples (included with the purchase of all CVA in-line muzzleloaders)

   Jag - Retains cleaning patch on end of ramrod

3. OTHER RECOMMENDED ACCESSORIES

Preloaders - To hold premeasured powder charge and bullet for quick reloading.

Range Rod - For easier loading and cleaning of your rifle.

G. PROPELLANTS

WARNING: NEVER USE MODERN SMOKELESS POWDER IN ANY MUZZLELOADER. The use of any amount of smokeless powder in a muzzleloader will create dangerously high pressures upon ignition, may result in severe injury or death to the shooter and/or bystanders, and will void the warranty.

Only six types of propellant are acceptable for use in CVA muzzleloading firearms.

The first type is **BLACKPOWDER**. (IMPORTANT: The term "blackpowder" refers to the formulation of the propellant, not the color. Many of the smokeless propellants manufactured for modern cartridges or shotgun shells are also black in color, but will create extremely dangerous pressures in the muzzleloading barrels.)

BLACKPOWDER CHART SHOWING APPROXIMATE USE OF THE VARIOUS GRANULATIONS

FG	(Commonly called Single "F") The muzzleloading enthusiast finds little use for this very coarse blackpowder. Its use is pretty much restricted to the large bore (10, 8, 4 gauge) shotguns and cannons of yesterday.
FFG	(Commonly called Double "F") This is a very popular powder for the larger (.45 to .58 caliber) rifles. It is also used for 12, 16 and 20 gauge muzzleloading shotguns.
FFFG	(Commonly called Triple "F") It is used in all percussion revolvers, most single shot pistols, and most of the smaller (under .45 caliber) rifles.
FFFFG	(Commonly called Four "F") The finest of all currently available blackpowders, Four "F" should only be used for priming flintlocks.

The second type of propellant acceptable for use in CVA muzzleloading firearms is **PYRODEX.** Pyrodex is a propellant designed for use in percussion rifles, pistols and shotguns found to be in good shooting condition by a competent gunsmith. Pyrodex relates closely to blackpowder on a volume to volume basis, but not the weight of the charge. In other words, a scoop type measure set to dispense 100 grains of blackpowder will dispense roughly 72 grains of Pyrodex (Pyrodex is bulkier). This lighter charge weight of Pyrodex will fill the measure and provide a charge which is ballistically similar to 100 grains of blackpowder of the appropriate granulation. Used

in this manner, Pyrodex will yield approximately the same velocities and pressures as blackpowder. Pyrodex is currently offered in two granulations of loose powder in addition to the pelletized form. These types and their uses are listed below:

PYRODEX RS (rifle & shotgun)	Designed for use in all calibers of percussion muzzleloading rifles and shotguns. Pyrodex Select has similar loading characteristics to RS.
PYRODEX P (pistol powder)	Designed for use in percussion muzzleloading pistols and cap & ball revolvers. Also used in .32 and .36 caliber rifles.
PYRODEX PELLETS	Pyrodex Pellets are a premeasured and preformed version of loose Pyrodex powder. Pyrodex Pellets are available for a variety of calibers and may be combined into multiple pellet loads to create several different grain-equivalent loads.

When using Pyrodex Pellets in CVA In-Line rifles the Musket Cap or 209 primer ignition system is recommended. This system provides the hotter flash necessary to ensure efficient ignition of the entire pellet charge.

Pyrodex Pellets and Triple Seven Pellets are the only propellant which can be used to create "magnum" loads for CVA "magnum" capable in-line rifles.

The other four brands of approved blackpowder substitutes include **Clean Shot Powder & Clean Shot Pellets, Clear Shot Powder, Pioneer Powder & Pioneer Powder Stix, and Triple 7 Powder & Triple 7 Pellets.**

Note: Please refer to powder manufacturers written instructions for the specific propellent you are using, or contact the customer service/technical department listed on the product label.

H. PROJECTILES

PowerBelt Bullets are the recommended projectile for use in all CVA in-line rifles. CVA bore diameters have been carefully matched with PowerBelt Bullet diameters to provide a safe optimum result when used with our recommended powder charges and projectiles in the appropriate

NOTE: MUZZLELOADING PROJECTILES MUST BE MADE FROM PURE LEAD. LINOTYPE OR WHEEL WEIGHT LEADS CONTAIN ANTIMONY WHICH CREATES AN EXTREMELY HARD, OVERSIZED PROJECTILE AND IS VERY DIFFICULT TO LOAD.

caliber.

CVA does not recommend the use of non-CVA approved projectiles for CVA rifles. This is due to the fact that CVA has no control over projectile bullet molds or saboted bullets sold and marketed by other manufacturers. Some projectiles produced by other manufacturers, especially saboted bullets, can produce high barrel pressures creating unsafe conditions. If you have questions concerning approved projectiles, contact the CVA customer service department at 5988 Peachtree Corners East, Norcross, Georgia 30071; 770-449-4687 or fax 770-242-8546, or visit us on the web at CVA.com or E-mail us at info@CVA.com.

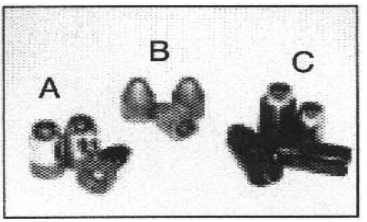


Figure 1

1. POWERBELT BULLETS™ – PowerBelt Bullets are conical projectiles with a plastic base. The base or "belt" provides a perfect gas seal, eliminating accuracy robbing blow-by. Like sabots, the PowerBelt Bullet's patented snap-on base creates a perfect gas seal, providing consistent pressures and unsurpassed accuracy. But unlike sabots, PowerBelt Bullets are easy to load and do not require cleaning after every shot. And they are full caliber sized, so you get the most knock down power possible out of a muzzleloader. PowerBelt Bullets are available in .45, .50, and .54 calibers, copper coated or pure lead, with hollow points or AeroTips, and in a variety of grain weights. They are the #1 selling muzzleloading bullet on the market and the only bullet recommend for CVA in-line rifles. Because of the design and the precision with which they are made, all currently available weights of PowerBelt Bullets can be safely used on your CVA in-line rifle. (Figure 1-A)
2. CONICAL BULLETS such as the CVA Buckslayer Bullet and others of this type provide acceptable accuracy in all CVA firearms as well as increased knock down power desired by hunters. These projectiles are best suited for use in medium to fast twist rifling barrels which stabilize the bullet more rapidly. Do not use a conical (other than the PowerBelt) heavier than 400 grains. (Figure 1-B)
3. SABOTED BULLETS – Modern sabots from various manufacturers have been tested and provide acceptable accuracy in CVA firearms when complying with the sabot manufacturer's recommendations for usage. Caution: Do not use a saboted bullet weighing more than 300 grains. (Figure 1-C)

Note: Patched round balls are not recommended for use in CVA in-lines. This is because the twist rate is too fast to stabilize a round ball and will result in very poor accuracy.

Loads for conical bullets and sabots should not exceed the maximum load recommended in Table 1.

I. RECOMMENDED LOADING DATA

The proper charge for any muzzleloading firearm is an efficient load which provides consistent ignition and velocity while keeping breech pressures below the maximum safe levels. **NOTE:** Rarely do two rifles settle on the same exact load.

The shooter should load using the minimum and maximum charge limitations shown in the table below. It is recommended to begin shooting using a charge in the middle of the recommended range, gradually increasing or decreasing the load to obtain the desired results. Tests have shown that heavier loads increase breech pressures while providing only a minor increase in velocity. These tests also indicate that heavier loads may be less accurate.

TABLE 1

CALIBER FIREARM	PROJECTILE TYPE	CHARGE TYPE	CHARGES IN GRAINS MINIMUM	MAXIMUM
.50	.50 Conical	Powder FFG	50	100
.45	.45 PowerBelt/Saboted	Powder FFG	50	100
.50	.50 PowerBelt/Saboted	Powder FFG	50	100
.45	.45 PowerBelt/Saboted	Pellet	50	100
.50	.50 PowerBelt/Saboted	Pellet	50	100
.45	.45 PowerBelt/Saboted	"Magnum Pellet"	100	150*
.50	.50 PowerBelt/Saboted	"Magnum Pellet"	100	150*

***WARNING:** This is a "Magnum" charge and can only be safely loaded in magnum capable rifles. Magnum capable rifles include all CVA break open and swing action rifles, Bolt Action in-lines (FireBolt, MagBolt, HunterBolt and Elkhorn) and any year 2001+ Eclipse, Stag Horn and Buckhorn rifles. These "magnum capable" guns can be identified by the one-piece barrel construction and a serial number ending in 01 or later. Such "magnum" loads do require the use of a musket cap or preferably the #209 shotgun primer ignition in order to fully ignite the charge. Such "magnum" loads should never be fired in CVA conventional In-Lines that do not feature the one-piece Monoblock barrel design.

J. LOADING AND SHOOTING CVA IN-LINE MUZZLELOADERS

1. Wear shatterproof shooting glasses and ear plugs or muffs to protect yourself from sparks, bits of fragmented caps, and hearing loss.
2. Verify the rifle is not loaded.
   a. Place ramrod down the barrel to breech plug and mark ramrod at the muzzle.

b. Remove ramrod and lay along outside of barrel, lining up mark at muzzle.

c. The end should be at the base of the breech plug. If rod does not line up, assume the rifle is loaded and that it should be unloaded before proceeding.

3. Check to make sure that breech plug and nipple (if applicable) are snugly screwed into place. Do not overtighten. Note: Make sure anti-sieze grease has been applied to all threads of the breech plug and nipple (if applicable).
4. Buckhorn - Pull the cocking handle to the rear until the bolt locks.

   Elkhorn - Cycle the bolt action.

   Manually move the safety to the rear position. Isure that the trigger does not release the firing pin.
5. Clean all oil and grease from barrel interior.
6. With the rifle pointed in a safe direction, place a 209 primer into the breech plug or a percussion cap on the nipple (if rifle has been adapted to shoot percussion caps).

CAUTION: Use a capper to place cap on the nipple as percussion caps are sensitive to pressure and can explode under extreme finger pressure.

7. Release the safety and fire cap or 209 Primer to insure bore and nipple are dry of solvent or moisture. Repeat minimum of three (3) times if using caps. **NEVER DRY FIRE ANY CVA RIFLE. DOING SO WILL DAMAGE BOLT ASSEMBLY AND/OR NIPPLE AND WILL NOT BE COVERED UNDER WARRANTY.**

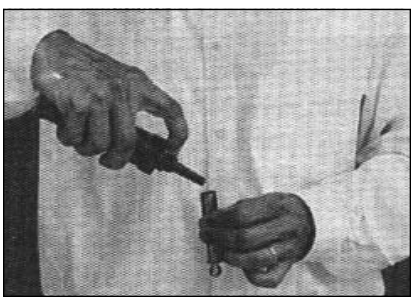


Figure 2

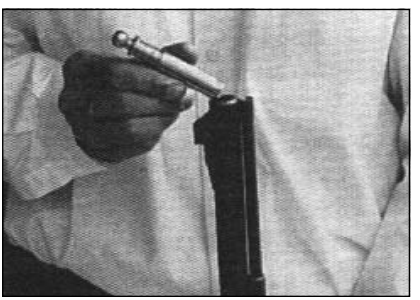


Figure 3

8. If using powder, pour powder from flask into a powder measure that is set for correct powder charge. (See Figure 2). Skip to step 9 if using pelletized powder.
9. With the muzzle pointed "up" and no part of your body extended over the gun, pour a measured charge or drop the correct number of pellets down the barrel. (See suitable charges - Table 1, Page 9)(See Figures 2 and 3).

CAUTION: Do not pour a charge directly from horn or flask. If a smoldering ember is present, it could ignite the powder in the container, as well as the powder charge, as it is poured into the barrel. This excessive amount of powder could cause a dangerous explosion. Therefore, be safety minded; use a powder measure.

10. If using loose powder, slap side of barrel in front of receiver. This will help insure that powder will fully enter the breech and nipple area.

11. For Lubricated Bullets, PowerBelt Bullet or Saboted Bullet:

N a. Make sure bullet is lubricated. PowerBelt Bullets and saboted bullets should require no additional lubrication.

N b. Start the projectile into the bore with your fingers, making sure it is centered.

N c. Use short end of bullet starter to press bullet just into muzzle. (See Figure 5).

12. Use longer end of ball starter to move projectile about six inches down the bore. (See Figure 6).

13. With ramrod, push projectile down on top of powder, firmly, but without crushing the powder or pellets. (See Figure 7).

IMPORTANT: Be sure projectile is seated firmly against powder. No air space should exist between projectile and powder.

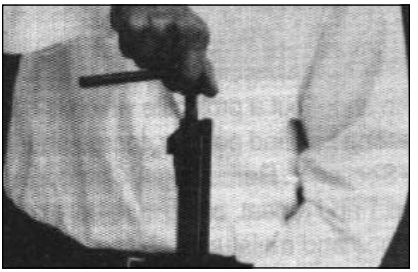


Figure 5

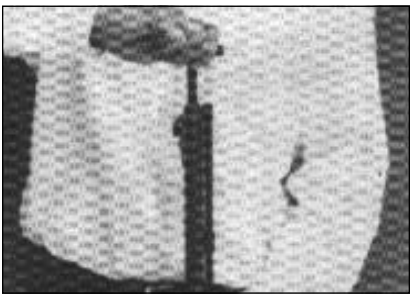


Figure 6

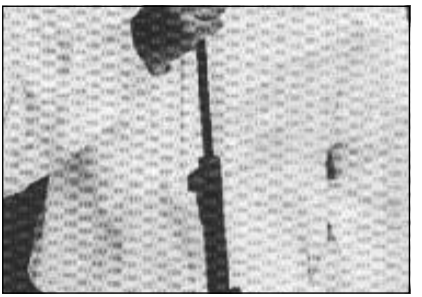


Figure 7

14. WITH GUN POINTED IN SAFE DIRECTION and bolt locked to the rear, place a 209 primer into the breech plug. If using percussion caps, place the cap onto the nipple. THE GUN IS NOW LOADED.(See

Figure 8).

15. Aim at target and release the safety. YOU ARE NOW READY TO FIRE.
16. Squeeze trigger to fire.
17. After firing, wait one minute to reload. This allows all remaining sparks in barrel to burn out prior to reloading.
18. If a misfire or failure to fire occurs, wait at least one minute with the gun pointed at the target.

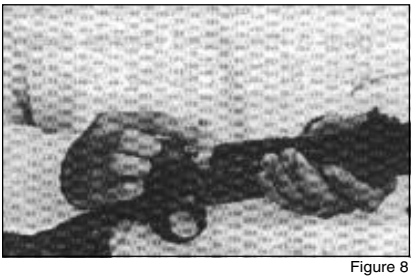


Figure 8

a. Install a new percussion cap on the nipple. Be certain of the target and fire.

CAUTION: When using the ramrod, never grab it more than 8 inches above the muzzle. To do so could cause a side stress, break the ramrod, and possibly puncture your hand.

b. Never attempt to shoot out a projectile which is not firmly seated against powder charge. The ball and powder charge should be removed using a ball puller. See Section R, Removing A Charge.

c. Go back to Step 1 and repeat, being sure bore and nipple are clean and free of obstructions and moisture.

K. IGNITION SYSTEM OPTIONS

1. #209 SHOTGUN PRIMER IGNITION SYSTEM – Accepts modern #209 shotgun primers. The shotgun primer is the most reliable in foul weather and is suitable for use with loose powder or Pelletized Powder.

   NOTE: All 2001 and newer CVA model in-lines are equipped with the #209 primer ignition as the primary ignition system. Conversion parts to fire percussion caps must be ordered from CVA customer service.
2. MUSKET CAP IGNITION SYSTEM – The CVA musket cap nipple enables the shooter to use Musket Caps in their In-Line guns. Musket Caps deliver approximately 3 times the flash to the charge than standard #11 percussion caps. Musket caps are suitable with use of loose powder and are recommended when using Pyrodex Pellets.
3. #11 IGNITION SYSTEM – Is suitable with the use of loose blackpowder or synthetic blackpowder only.

L. SAFETY SYSTEMS

WARNING: Never rely on any mechanical safety.

All Buckhorn and Elkhorn rifles are equipped with a manual, thumb-operated safety. The reqar position is safe, the forward position is fire.

Safe Position Figure 9

Fire Position Figure 10

M. BUCKHORN DISASSEMBLY/ASSEMBLY FOR CLEANING AND MAINTENANCE. (FIGURE 12)

NOTE: Before beginning this procedure make sure gun is unloaded. (See Step 2 of Section J).

1. Remove ramrod from gun.
2. Loosen and remove the barrel fixing screws (2).
3. Remove the barrel/receiver assembly from the stock.
4. Unscrew and remove the cap at the rear of the receiver. Percussion bolt should be in the uncocked position prior to unscrewing cap.
5. Remove the bolt spring.
6. Pull the bolt handle out of the bolt.
7. While depressing the trigger, remove the bolt by sliding out through the rear of the receiver.
8. Remove the breech plug and nipple (if applicable) with the Breech Plug/Nipple Wrench tool supplied. The slotted end removes the nipple and the screw driver end removes the breech plug. The steel rod slides through the Breech Plug/Nipple Wrench tool body acting as a handle. IMPORTANT: LUBRICATE BREECH PLUG AND NIPPLE THREADS WITH CVA BREECH PLUG/NIPPLE GREASE (OR AN ANTI-SEIZE COMPOUND) BEFORE REINSTALLING.

   NOTE: Check breech plug for snug fit with wrench before firing. Do not overtighten plug.
9. Clean barrel according to instructions found in General Cleaning and Maintenance Section (Section P). After each session it is critical to remove trigger and bolt assemblies and clean thououghly, especially when using modern 209 primers.
10. Do not attempt to disassemble the trigger assembly. Clean as a one-piece unit.

11. Reassemble the rifle by reversing the order of disassembly.
12. Preparation Before Loading
    a. Insure no obstructions are present in the barrel.
    b. Insure barrel is clean and dry before loading. Fire several primers through the rifle before loading powder to eliminate any moisture or solvent remaining in the barrel.
    c. Insure bolt locks in place to the rear and be certain safety is engaged. Insure the trigger does not activate the bolt before placing a percussion cap on the nipple.

DO NOT ATTEMPT TO USE THIS RIFLE IF ANY OF THE SAFETY MECHANISMS DO NOT OPERATE PROPERLY. CHECK WITH A COMPETENT GUNSMITH OR CVA CUSTOMER SERVICE TO CORRECT THE PROBLEM, AS ACCIDENTAL FIRING MAY RESULT.

N. REMOVAL AND INSTALLATION OF BOLT ASSEMBLY FROM THE RECEIVER

NOTE: For CVA Bolt Action Muzzleloaders only. Before beginning this procedure make sure gun is unloaded. (See Step 2 of Section J).

BOLT REMOVAL

1. Cycle the Bolt Handle to the open and back position. Then, as per arrow "A" press down on the bolt handle (Figure 13).
2. Maintaining downward pressure on the bolt handle (as described in Step 1), pull the bolt assembly rearward, as per arrow "B". The entire bolt assembly will now pull free from the receiver (Figure 14).

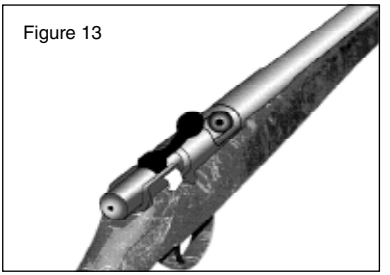


Figure 13

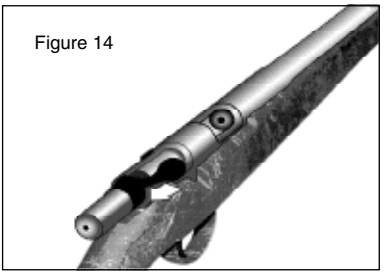


Figure 14

INSTALLATION OF BOLT

1. With the Bolt Assembly in the cocked position, align the bolt assembly in the same position as when removed in Figure 14. Using the thumb, push forward on the Bolt Cap, past the initial resistance, until the Bolt Assembly stops (Figure 15).
2. Cycle the Bolt Handle up, as per arrow "C". Then forward, as per arrow "D" (Figure 16).

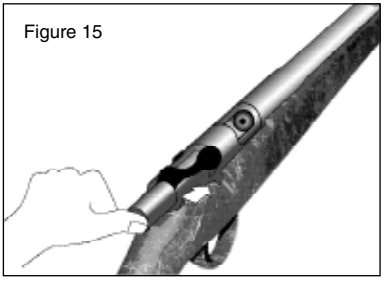


Figure 15

O. BOLT ACTION DISASSEMBLY / ASSEMBLY AND CLEANING

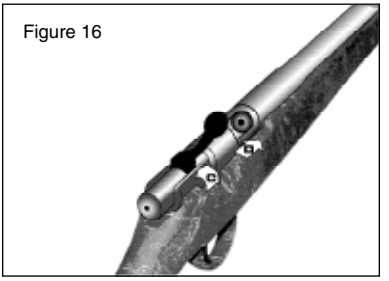


Figure 16

1. Check to ensure gun is unloaded.
2. Using the allen wrench provided, unscrew the bolt cap by turning counterclockwise. The spring, striker, bolt handle, and bolt body will now come apart (Figure 17). We do not recommend removing the extractor from the bolt.
3. Clean all bolt parts thoroughly, dry all parts, then lubricate with a non-petroleum based gun oil.
4. Reassemble bolt body, bolt handle, striker and spring.
5. Move bolt handle and striker to the uncocked position (Figure 18).
6. Place the bolt cap back over the spring. While pressing the spring downward, screw the bolt cap on to the bolt body.
7. Holding the bolt cap securely with the allen wrench, **twist the bolt handle counter clockwise to the cocked position.** (Fig. 19)
8. Return bolt to receiver as described in section N.


Figure 17

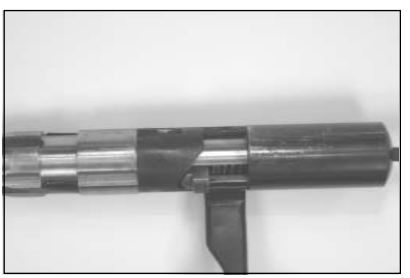


Figure 18

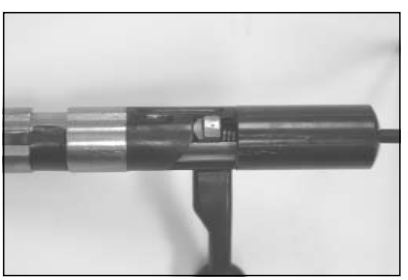


Figure 19

P. GENERAL CLEANING AND MAINTENANCE

Blackpowder and blackpowder substitutes are very corrosive. Therefore, careful cleaning of your muzzleloading firearm is extremely important. If left uncleaned for any length of time the fouling will cause rust, pits, and

degradation of the metal, particularly around threaded areas.

The barrel attaching system on most CVA firearms allows for the barrel to be removed for easier cleaning without disassembly. The recommended cleaning procedure for In-Line CVA rifles follows.

1. Verify that gun is unloaded. (Section J, Step 2)
2. Remove cocking mechanism from gun as described in section M for Buckhorn and section N for Elkhorn.
3. Insert the slotted end of the Breech plug tool (provided) into the receiver to engage the breech plug. Turn counterclockwise to remove.
4. Using a cleaning brush and solvent, thoroughly clean breech plug of all rust preventative oils. **Important** - Lubricate breech plug threads with CVA Breech Plug Grease (ACl670) before reinstalling. NOTE: Do not overtighten plug.
5. With the allen wrench provided, loosen and remove the retention hex screws (2) from the underside of the stock.
6. You will now be able to separate the stock from the barrel.
7. Remove the trigger mounting screws and lift the one-piece trigger from the receiver. Note: For a light field cleaning this process is not necessary.
8. Attach the cleaning jag (provided) to the ramrod. Swab the barrel with patches and cleaning solvent until all residue has been removed. For best results, use a range or cleaning rod that allows greater clearance from the muzzle.
9. Clean the breech area, including receiver threads, with a CVA breech brush and Barrel Blaster cleaning solvent (AC1660).
10. Dry all parts thoroughly, including the inside and outside of the barrel, and spray with a light coating of non-petroleum based gun oil.
11. Reassemble the gun components in reverse order.

Note: Always store your muzzleloader unloaded and in a cool dry place.

Q. REMOVING A CHARGE

Under normal conditions a muzzleloading firearm is unloaded simply by firing it into a suitable and safe backstop. There are, however, some conditions under which the firearm cannot be fired and the charge must be removed.

THE TWO MOST COMMON CONDITIONS ARE AS FOLLOWS:

1. If the projectile is not seated firmly against the powder charge, stop immediately! Do not attempt to fire the rifle. You must remove the charge and clean the barrel.
2. If the rifle is loaded in a proper manner yet fails to fire after repeated attempts (as explained in the "Loading and Shooting" Section).

NEVER ATTEMPT TO PULL A CHARGE UNTIL THE POWDER HAS BEEN RENDERED INERT (DEACTIVATED) BY THOROUGHLY SOAKING IN WATER.

Removing a projectile is dangerous when there is a powder charge behind the projectile. Two approved methods to remove a projectile from the barrel are to: (1) Use a CO 2 discharger to blow the projectile from the barrel or (2) With the muzzle in a safe direction, and the primer removed from the breechplug, remove the bolt, nipple and breech plug (see section M, N). Empty the powder into a safe container. Using the ramrod and cleaning jag with a solvent soaked cleaning patch, push the projectile from the breech forward and out the muzzle of the barrel.

After the projectile has been removed from the bore, clean the bore, barrel and parts as explained in the "Cleaning" section and reassemble the firearm.

If for any reason you are unable to remove the charge in the manner recommended, soak the barrel in very hot water for one-half hour. Once the powder has been rendered inert, take the barrel to a qualified gunsmith.

R. SIGHT ADJUSTMENTS

CVA rifles are equipped with adjustable style rifle sights for windage and elevation.

1. Adjust the rear sight for elevation by loosening the elevation retaining screw located on the side of the rear sight. REMEMBER: Slide the sight up the ramp to raise the point of impact and down the ramp to lower the point of impact.
2. Adjust the rear sight for windage by loosening the windage retaining screw on the top of the rear sight. REMEMBER: To move the point of impact to the right, move rear sight to the right. To move the point of impact to the left, move rear sight to the left.

S. SCOPE MOUNTING

CVA In-Line rifles are drilled and tapped for easy scope installation. Do not drill additional holes in the barrel as this could weaken its structure, causing injury and/or death and will void the CVA warranty. Scopes should be mounted according to manufacturer's instructions. CVA's Universal In-Line Scope Mounts (AC1666-AC1669) allows the shooter the option of a quick detachable scope mounting system that returns to the zero point when reinstalled.

T. STATEMENT OF LIABILITY

This gun is classified as a firearm or dangerous weapon and is sold by us with the express understanding that we assume no liability for its resale and unsafe handling under local laws and regulations. Connecticut Valley Arms assumes no responsibility for physical injury or property damage resulting from intentional or accidental discharge, or the function of any gun subject to influences beyond our control. We will honor no claim which was the result of careless or improper handling, unauthorized adjustment,

unauthorized modification of firearm, improper loading, use of improper powder or components, corrosion or neglect.

For your protection, examine this firearm carefully at the time of purchase. If any unsafe condition exists contact your dealer or CVA immediately.

Connecticut Valley Arms does not recommend or approve of any custom alteration or conversion. Firearms subjected to alteration are not covered by factory warranty. Responsibility for these alterations rests totally with the individual performing such work. Any such work done improperly or without proper judgement may cause malfunction or damage resulting in injury or death to the shooter and/or bystanders.

U. VOLUNTARY RECALL

In August 1997, CVA implemented a Voluntary Recall of all In-Line rifle models with serial numbers ending in -95 or -96. If you have a CVA In-Line model with such a serial number do not use or allow anyone else to use the gun. If you have one of these rifles, call CVA immediately at 770-449-4687 for complete details and a replacement barrel.

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

V. SERVICE & REPAIR (770) 449-4687 MON-FRI 8:30 - 4:00 PM EST

Should your CVA firearm require repair, we recommend that it be returned to our Warranty Repair Center. This will insure all work is performed by a competent staff of trained technicians.

Any firearm returned to the repair center should be marked to the attention of Repair Department. A letter of instructions should be enclosed to facilitate handling. Please be sure to include name, address and day-time phone number. All firearms must be unloaded, cleaned, and shipped via United Parcel Service (UPS).

Our Service Department will inspect and evaluate the problem. Should any work required not be covered by warranty, you will be advised of the cost. No work will be done without your approval. The warranty may not be honored on guns returned in a corroded state due to a lack of cleaning.

W. ORDERING INSTRUCTIONS FOR REPLACEMENT PARTS

1. All correspondence and orders must be addressed to:
   CVA
   5988 Peachtree Corners East
   Norcross, GA 30071
   Attention: Customer Service
2. Include in the order:
   Your name, address and phone number
   Model of Gun
   Part Number
   Part Description
   Caliber and Type (Percussion, Flintlock)
3. If the proper part identification is not possible from the parts list, send the specific part in question to aid identification.
4. Discontinued items are subject to availability. CVA will reserve the right to make compatible substitutions when necessary.
5. Enclose the total retail price of the item plus postage and handling. Refer to the chart to determine this.
6. Please allow four to six weeks from receipt of order for delivery.

POSTAGE & HANDLING CHART

Orders Totaling:	Add
UP TO $20.00	$3.50
$20.01 - $30.00	$5.00
$30.01 - $50.00	$7.00
$50.01 - $80.00	$10.00
$80.01 - $110.00	$15.00
$110.01 - $200.00	$20.00
$200.01 - $500.00	$25.00
OVER $500.00	$30.00

Georgia residents must add 6% sales tax.

LIMITED LIFETIME WARRANTY

Connecticut Valley Arms (CVA), warrants all factory finished firearms to be free of defects in material or workmanship, for the lifetime of the firearm, to the original consumer owner. This warranty is established by return of the authorized warranty card within fifteen (15) days of purchase, and is not transferable.

Any CVA firearm or part thereof returned postage paid to the address below will be repaired or replaced to our commercial standard, free of charge, and returned to the purchaser postage prepaid.

This warranty does not cover any damage resulting from careless handling, improper loading, corrosion, neglect, or customer alteration. Nor does

it cover normal wear of any part, metal or wood finish, cost of inconvenience due to product failure, or transportation damage.

Connecticut Valley Arms reserves the right to refuse to repair or replace firearms or parts thereof damaged by the above.

This warranty gives you 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 blackpowder or Blackpowder Substitute has been used.
- CVA recommended powder charge has been exceeded.
- Any form of plastic patch has been used. (modern day sabots or PowerBelts not included)

Address all inquiries and correspondence to:

Connecticut Valley Arms
5988 Peachtree Corners East
Norcross, GA 30071
Attn: Customer Service Department

Connecticut Valley Arms
5988 Peachtree Corners East
Norcross, Georgia 30071

FORM 105
REV. 11/04