INSTRUCTION MANUAL
Version 1.6
Indian Creek Design BushMaster series
Model B2K2

Trademark Notices:

***** ***Panther VTS*** is a registered trademark of **Indian Creek Design, Inc.**
***** ***Panther II VTS*** is a trademark of **Indian Creek Design, Inc.**
***** ***Puma*** is a trademark of **Indian Creek Design, Inc.**
***** ***Bobcat*** is a trademark of **Indian Creek Design, Inc.**
***** ***Thunder CAT*** is a trademark of **Indian Creek Design, Inc.**
***** ***Desert FOX*** is a trademark of **Indian Creek Design, Inc.**
***** ***45/68 Magnum VTS*** is a trademark of **Indian Creek Design, Inc.**
***** ***BushMaster 2000*** is a trademark of **Indian Creek Design, Inc.**
***** ***B2K*** is a trademark of **Indian Creek Design, Inc.**
***** ***B2K2*** is a trademark of **Indian Creek Design, Inc.**

STATEMENT OF LIABILITY

Indian Creek Design, Inc., delivers this air gun with the understanding that **Indian Creek Design, Inc.,** assumes no responsibility for its resale or safe handling. It can be considered a dangerous weapon if mishandled, abused, or the safety instructions are ignored. **Indian Creek Design, Inc.,** assumes no responsibility for physical injury or property damage resulting from its use.

Indian Creek Design, Inc., makes no warranties with respect to this documentation and disclaims any implied warranties of merchantability or fitness for a particular purpose. The information in this document is subject to change without notice. **Indian Creek Design, Inc.,** assumes no responsibility for any errors that may appear in this document.

WARNING:

This is not a toy. Misuse may cause serious injury or death. Eye protection designed for paintball use must be worn by the user and any person within range. It is to be used by adults only. It is to be used on safety certified fields only. Obey all local, state and federal laws. Follow the rules of safe paintball gun handling. Read all instructions before use.

B2K2 OVERVIEW

The *B2K2* is a quality marking instrument specially designed to meet the needs of the professional style tournament player. The *B2K2* is an electronic solenoid actuated computer controlled marking device. The major components of the *B2K2* are machined from solid, aircraft-grade aluminum, and then hard anodized per military specifications. No castings are used in the construction of the *B2K2*, thereby providing the end user with a high-quality, precision-engineered marking instrument.

Paintball markers get a lot of abuse. Indian Creek Design, Inc., has built the *B2K2* with this in mind. All internal parts, wear and contact surfaces have been heat treated or hard anodized. The toughest and most resilient materials and components have been used in the design of this instrument.

The *B2K2* uses a single standard 9-volt battery for operation. The circuitry is a microprocessor based digital controller.

The *B2K2* does not need tools in order to be field-stripped. Removing the field-strip link-pin of the bolt enables the removal of the entire bolt assembly.

The *B2K2* offers Alow-pressure≅ operation. The main operating pressure is 225-300 PSI nominally adjusted to visually via the gauge on the primary (input) regulator. The secondary pressure is factory pre-set and regulated to 85-95 PSI. Gas usage is controlled through these 2 internal regulators. The unique feature of this gun is the regulator adjustment. This allows precise adjustment for the velocity control of the gun and for gas efficiency.

The *B2K2* comes with a removable barrel system. This feature allows the user to select a barrel that is most suitable for the playing conditions. All barrels are mirror-honed with a muzzle break, step-bore and spiral porting and stock length is 12".

OPERATION

Read the entire manual before you prepare your *B2K2* for firing. Safety and safe gun handling are the most important aspects of paintball sports. Please practice each of the following steps with an **unloaded** gun before attempting to charge your gun with compressed air and paint pellets. **Do not load compressed air and paint pellets into your *B2K2* until you feel completely confident with your ability to handle your *B2K2* safely.**

Keep your finger out of the trigger guard and away from the trigger; point the muzzle of the gun in a safe direction at all times. Keep the gun turned off until ready to operate. The ***B2K2*** does not have a mechanical safety, only an on-off switch! ***Always keep your B2K2 pointed in a safe direction. Always use a barrel plug.***

Installing the 9 volt Power Source

The *B2K2* requires a single 9-volt battery as the electronic power source. The use of long life batteries is recommended.

The 9-volt battery is located in the frame (or Atray≅) above the trigger and on-off switch. The battery is accessed through a battery cover located on the right side of the gun.

Remove the 2 screws that hold the battery cover in place. Connect the battery to the terminal and place the battery inside the frame (or tray) carefully being sure that the black and red wires to the terminal are forward and are toward the bottom. Make sure that there are no abrupt kinks and the wires are comfortably placed, do not force them into place. Replace the cover and 2 screws.

If you need to remove the complete battery frame and grip follow these

instructions. Before removing the tray, remove the grip frame side panel on the left side, exposing the CPU and switches. Note the blue wires looped down into the PCB cavity. This loop is to allow the necessary distance between the tray and upper body to change the battery or maintain the solenoid. This loop must be maintained when re-assembly is completed. To remove the tray, use a 7/64 allen wrench and remove the four 6-32X1" screws around the bottom of the Atray≅. Gently separate the upper section from the lower section, being careful not to put stress on the wiring harness (blue looped wires) connected to the solenoid valve on the upper section**.** Place the tray and upper body together being careful not to pinch any wires in the body, bring the blue wire loop back to its original position. Turn the main on-off switch to the on position and be sure the LED lights up, then turn off. Replace the four 6-32X1" screws and the grip panel.

The LCD readout screen *located on the back of the marker*.

That's right. It's In Your Face. No scrambling during a game to look at something on the side of your marker or in your hand. Keep your profile tight, your aim secured, and ready to fire as you glance briefly at the LCD timer and shot counter. Information comes to you quickly and easily.

Software and an on-board connector for the infrared sensors (anti-chop eye) are already built into the board so that upgrades will be easier in the future. The LCD, when turned on, first shows the mode, then the rate of fire, and then defaults to the game timer and shot counter that run during the game. The LCD is simple to use. It=s practical. It=s made for Paintball. It=s not Playstation, Nintendo, Windows or Mac compatible. To bypass the mode and BPS display, you can pull the trigger and then turn the main switch to the on position, that activates the timer immediately and allows the gun to fire on the very next trigger pull.

CO2, Nitrogen or Compressed Air Usage

The *B2K2* comes with a male quick-disconnect adapter on the input side of the regulator. The *B2K2* can be set up to use a nitrogen or compressed air system. Although it may be used, CO2 is not recommended for use as the propellant. Generally the CO2 that we use as an industry is industrial grade CO2. It is dirty, pumped from large tanks full of contaminates including rust and metal flakes. CO2 can be used successfully if used with anti-siphon systems and filters. Be aware that under the conditions of CO2 the results may not be as expected. Consult the place

where you purchased your *B2K2*, or a recognized and competent airsmith, for instruction in the safe handling of compressed-air cylinders before purchasing or connecting one to your *B2K2*.

Adjustable regulator compressed air systems:

The input pressure from your compressed air system should be regulated down to 350-500 PSI output pressure. Note: on MOST systems, there is a large difference between the setting pressure and the actual output operating pressure. If your compressed air system does not have an output pressure gauge on its regulator we do not recommend its use.

Fixed output regulated compressed air systems:

VERIFY the output pressure from the regulator. If your compressed air system does not have an output pressure gauge on its regulator we do not recommend its use.

CO2 usage:

Although it may be used, CO2 is not recommended for use as the propellant. Generally the CO2 that we use as an industry is industrial grade CO2. It is dirty, pumped from large tanks full of contaminates including rust and metal flakes. CO2 can be used successfully if used with anti-siphon systems and filters. Be aware that under the conditions of CO2 the results may not be as expected.

REMEMBER: CO2, compressed air or nitrogen systems can be extremely dangerous if misused or improperly handled. Use only D.O.T. certified tanks.

Before pressurizing your *B2K2*, check to make sure that you have a barrel plug in place and there is no paint in the gun. The on-off switch should be OFF. Air can now be applied, the gun will become pressurized and the bolt will move backwards.

Paintball and Loader Usage

The *B2K2* comes equipped to accept 1.03" OD standard-gravity feed loaders. Fit the loader directly into the vertical feed tube. Always twist it down in a CLOCKWISE direction. Always twist it off in a CLOCKWISE direction as well. The *B2K2* uses .68 caliber, water-soluble paint pellets. The pellets are gravity fed from the loader through the direct vertical feed nipple and into the breech of the gun.

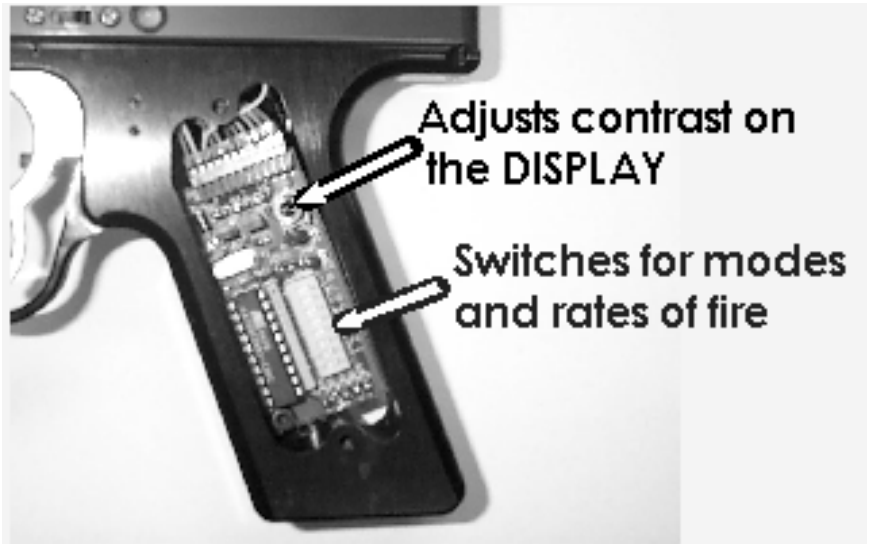
DIP Switch settings - Modes - Rate of Fire -

The B2K2 features 8 different modes of fire.

Mode selection is dependant on the switch settings of the DIP switches on the Printed Circuit Board.

Modes are:

1. Semi-auto (one single shot per trigger pull),
2. 2 shot (2 shots if the trigger is pulled and not released, with single shot capabilities)
3. 3 shot burst (3 shots if the trigger is pulled and not released, with single shot capabilities)
4. 6 shot burst (6 shots if the trigger is pulled and not released, with single shot or any amount between capabilities).
5. Auto Response mode fires once the trigger is pulled and once when it is released.
6. Turbo mode (emulated trigger reaction). To engage this mode you must maintain a sequence of cycles within a pre-determined timing rate, and as long as this repetition is maintained, the mode will remain engaged.
7. Zip mode (a ramping cycle) starts at 8 BPS and increases to 12 BPS within a 6 shot burst if the trigger is pulled and not released, with single shot or any amount between capabilities.
8. Full auto (as long as the trigger is pulled it will cycle).



Mode selection is accomplished using switches 1 thru 3. The following configurations will give you the desired modes.

	Switch numbers		
Modes	**#1**	**#2**	**#3**
Semi-Auto	off	off	off
2 shot Burst	on	off	off
3 shot Burst	off	on	off
6 shot Burst	on	on	off
Auto-Response	off	off	on
Turbo Mode	on	off	on
Zip (ramp)	off	on	on
Full Auto	on	on	on

Rate of Fire and timing is as follows:

Dip switch #4 and #5 (registers Solenoid on times in milliseconds)

#4	#5	
off	off	= 06 ms (.006 seconds)
on	off	= 08 ms (.008 seconds)
off	on	= 10 ms (.010 seconds)
on	on	= 12 ms (.012 seconds)

Dip switch #6, #7 and #8 (registers Solenoid off (delay before re-cycle) times in milliseconds)

#6	#7	#8	
off	off	off	= 70 ms (.070 seconds)
on	off	off	= 80 ms (.080 seconds)
off	on	off	= 90 ms (.090 seconds)
on	on	off	= 100 ms (.100 seconds)
off	off	on	= 110 ms (.110 seconds)
on	off	on	= 120 ms (.120 seconds)
off	on	on	= 130 ms (.130 seconds)
on	on	on	= 140 ms (.140 seconds)

Calculating the cycles per second is easy and precise. For instance, if, S4 is off & S5 is on, S6 & S7 are off and S8 is on the rate is calculated as .010 + .110 = .120. The total cycle times for .120 = 8.33 cycles per second (1 divided by .120). This is the calculation for **B**alls **P**er **S**econd.

Firing the *B2K2*

Keep your finger out of the trigger guard and away from the trigger; point the muzzle of your gun in a safe direction at all times during this process. Be sure your goggles are securely in place. Push the on-off switch into the off position.

Always keep your B2K2 pointed in a safe direction!

1. Place the empty loader onto the gun. Be sure that it is securely mounted in place.
2. Apply the compressed gas, pressurizing the gun.

3. Put the paintballs into the loader.
4. Remove the barrel plug.
5. Aim the gun at the target.
6. Push the on-off switch to the ON position, the LED will light up.
7. Place your finger on the trigger.
8. Pull the trigger with a smooth squeezing motion. **BANG. . . .**

UNLOADING THE *B2K2*

Keep your finger out of the trigger guard and away from the trigger; point the muzzle of your gun in a safe direction during this entire process. ***Always keep your B2K2 pointed in a safe direction!***

1. Push the on-off switch to the off position. The LED will be off.
2. Place the barrel plug into the end of the barrel.
3. Remove the pressurized gas from the marker carefully.
4. Tilt the marker so that the loader is lower than the body of the gun.
5. Remove the paintball loader from the direct vertical-feed tube, turning the loader in a clockwise direction.
6. Inspect the inside of the direct vertical-feed tube to be sure that a ball does not remain inside the breech.

MAINTENANCE

CAUTION: Before attempting to perform any maintenance operations or any gun disassembly, make sure that ***all*** paint pellets and sources of propellants have been removed from the gun. Insert a barrel plug, push the on-off switch to the OFF position and keep the gun in its "SAFE" mode.

Simple Maintenance

Keep your *B2K2* clean and lubricated to eliminate the friction that would prevent reliable operation. Clean and lube the gun before each use, and do not put it away dirty. USE NO OILS! Do ***not*** use petroleum-based lubricants in the lubrication of this gun. Teflon or silicon spray lubricants are the recommended types of lubrication for the bolt area of the main housing. Lithium grease is recommended for lubricating the regulator pistons, and the cylinder assembly. Be sure it is Lithium Grease and not axel grease.

Cleaning Paint from the Barrel

Unscrew the barrel with approximately one and one half (1-1/2) revolutions to remove the barrel for swabbing/cleaning. Keep the barrel clean to insure the continued accuracy of the *B2K2*. Gelatin from the paintballs has a tendency to build up in the barrel. As part of your cleaning ritual, wash out the barrel with hot soapy water and rinse it well.

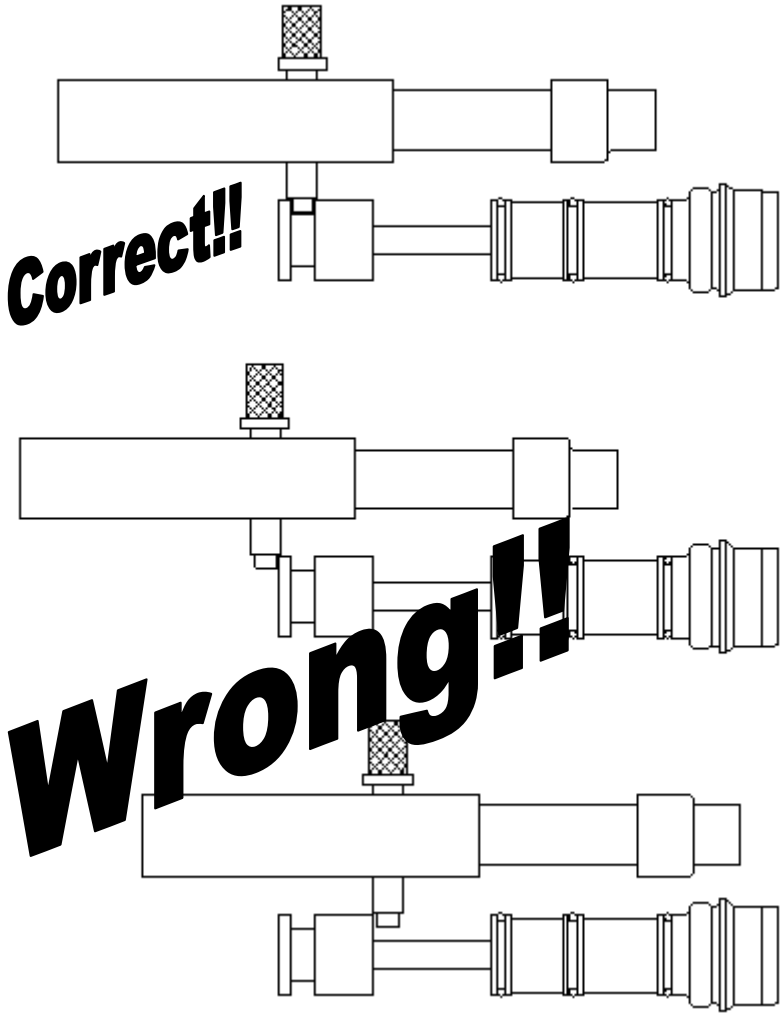
Removing the Bolt Assembly (Field Stripping)

Remove the paint and pressurized gas from the gun. ***The gun can be field stripped while it is pressurized.***

1. Remove (pull) the knurled pin from the top of the marker. Pull the bolt body out the back of the main body.

Once the bolt assembly is removed, it is possible to clean the entire upper receiver of the gun, including the breech and feed tube area. You may slightly lubricate the rear section of the bolt and bolt chamber with a light synthetic spray lubricant before re-installing the bolt. Do ***not*** use petroleum/oil-based lubricants; ***do*** use Teflon or silicon-based lubricants. The Abolt≅ is ***NOT*** a simple plastic; it is a natural Delrin acetate material, which is a Dupont 3M material, developed specifically for this type of application. *The use of a metal type of bolt will void all warranties.*

1. Point the barrel downward and slide the bolt in until the link pin hole lines up with the slot in the hammer and carefully install the link pin. Note: You must be sure that the link pin is engaged PROPERLY with the hammer, if the link pin IS NOT PROPERLY replaced, you may damage the hammer/cylinder assembly.



Remember…operator error is not covered by warranty!

STORAGE AND TRANSPORTATION

- Your *B2K2* must be clear of all paint and propellant when not being used.
- Be sure the on-off switch is off and the LED is not lighted.
- Put the barrel plug in place.
- Make sure the gun is clean.
- Store your *B2K2* in a clean, cool, dry place.
- Keep your *B2K2* away from children.

This air gun is not a toy! To be used by adults only!

Your *B2K2* must be clear of all paint and any source of propellant during transportation to and from the playing field. Keep your barrel plug in place. Keep the on-off switch in the off position. Protect your *B2K2* from excessive heat during transportation. Observe and obey all local, state and federal laws concerning the transportation of paintball guns. For information concerning any of the laws in your area, contact your nearby friendly law enforcement agency.

IMPORTANT: Never carry your *B2K2* uncased when not on a playing field. The non-playing public and law enforcement personnel may not be able to distinguish between a paint marking device and firearm. For your own safety and to protect the image of the sport, always carry your *B2K2* in a suitable gun case or in the box in which it was shipped.

If you must ship your *B2K2* for any reason, the box in which you purchased the gun is acceptable to all major carriers. Never ship charged CO2 or pressurized gas containers.

ADJUSTING THE TRIGGER PULL

You will notice two screws in your trigger. These screws adjust the length of pull and actuation point of the trigger. The bottom screw adjusts your trigger stop point (length of pull). The top screw is the contact point for your micro switch.

1. Use *blue loctite* while adjusting the screws. Normal activity can cause the screws to back out of adjustment. DO NOT glob the loctite on, it can cause damage to the micro switch if you use too much.
2. Begin by adjusting the bottom screw to your desired pull. Screw it in to lessen the distance the trigger must travel.
3. *Very Carefully* screw in the top screw. Making large adjustments can force the screw into the micro switch and damage it. You will want to screw it in to the point where it makes contact with the micro switch but does not permanently rest on it. Continually check to verify that the LED flashes off and then back on when you pull the trigger. If you pull the trigger and the LED goes off and *stays off*, you have adjusted the screw in too far. Back it out.
4. Clean up any excess loctite and let it dry for at least an hour before using your *B2K2*. This ensures the screws will remain in place.

B2K2 TUNING GUIDE

High pressure regulator adjustment:
The *B2K2* has a totally new and innovative system. The pressurized gas is regulated internally. The pressure regulator is externally adjustable via the screw with the slot in the bottom of the high-pressure regulator. A cap for this screw has been provided to keep access to this screw restricted. To increase the pressure, thus increasing the velocity of your projectile, remove the cap. Using a wide screwdriver, or even a Quarter insert into the slot and turn clockwise.

NOTE: Only slight turns are needed to accomplish changes in the pressure used to shoot the paintball, thus changes in the velocity at which it is propelled.

To decrease the velocity of your shots, turn the screw counter-clockwise. You must

take a Aclearing≅ shot before the change in the decreasing direction can be registered.

A pressure gauge has been installed into the regulator body to indicate the exact operating pressure of the marker. This gauge is extremely useful. At the factory we set the regulator gauge to 225-300 PSI with an input pressure of 400 PSI using Compressed air as the base propellant. Under normal circumstances these settings will produce paintball velocities at approximately 280-300 fps. The input pressure from your tank should be set at 350-500 PSI. Higher input pressures will not provide increased performance. There is a specific input side and output side of the main input regulator. If the gauge and input sides are switched, the outcome will be total bypassing of the main input regulator.

Low pressure regulator adjustment:
The low pressure regulator is externally adjustable via the adjustment screw with the slot for a wide screwdriver or even a quarter in the front of the low-pressure regulator. The low pressure regulator is pre-set at the factory to 85-95 PSI to operate the 4-way solenoid actuated valve. It may be necessary to re-adjust the low pressure regulator from time to time. Bench adjusting the regulator can be done by pressurizing the gun, be sure the input regulator is set properly, and then turning the adjustment screw inward (clock-wise) until you hear a leak coming from the 4-way valve in the grip area. The 4-way valve has an over-pressurization relief valve that will start to bleed off at approximately 125 PSI, once you hear the leak start then back off the adjustment screw 2 turn and the leak will stop. That will approximate the pressure to about 90 PSI. The low pressure regulator is designed to shut down and preserve the integrity of the low pressure system if it sees an input pressure over approximately 400 PSI coming from the main input regulator.

This gun was designed with safety and safety standards in mind. If you attempt to shoot paintballs higher than established safety standards, the gun will not function properly.

NOTE 1. You may notice that if you attempt to operate the gun at extremely high velocities, the internals will not function properly!

NOTE 2. This gun is not designed to shoot above the safety limits established by industry standards.

Leak Related Problems

1. **The *B2K2* has a leak down the barrel. Reason: gas is leaking through or around the valve pin seal or O>ring area.**

   a. Can you hear the leak when the gas is removed? Yes? There is no leak. You hear the ocean.
   b. The valve seal is marred/scratched or worn out or dirt has gotten to it. Replace it.

2. **The *B2K2* has a leak around the high pressure regulator seam. Reason: the seal between the regulator body and the main body is bad**.

   a. Tighten the regulator to the body.
   b. Check and/or replace the O'ring.

3. **The *B2K2* has a leak around the low pressure regulator seam. Reason: the seal between the regulator body and main body is bad or the regulator has loosened up**.

   a. Tighten the regulator into the body.
   b. Check and/or replace the O=ring gasket. Sized -019.

4. **The *B2K2* has a leak inside the grip/battery area.**
   Reason: the 4-way valve is leaking.

   a. Tighten the 4-way valve to the manifold. Take care not to over-tighten.
   b. Check for over-pressurization from the low pressure regulator. Re-adjust the low pressure regulator.
   c. Replace the O=rings on the cylinder assembly. Sized -015.
   d. Replace the piston O=ring. Sized -011
   e. Replace the solenoid/valve assembly.

Ball Breakage Problems

1. **The ball breaks in the breech.**
   a. The balls in your loader can bind, messing up your trigger timing. Note the ball drop and use an agitated loader.

b. As you run and shoot, you actually unweigh the gravity-fed balls in your loader. This can cause a ball to hesitate in its drop. This affects your trigger timing.

c. If the ball retention ball does not move freely, the paintballs will crush against it or it may have stuck in the depressed position allowing double feeding. Check its tension regularly and keep this area as clean as possible.

d. If the ball retention ball is too sloppy, the ball will not be held in the proper position. This may allow the next ball to enter the path of the bolt, subjecting it to impact cracking or shearing. Verify the tension.

e. Increasing the timing of the solenoid on time will decrease the possible blow-back that is created when the ball is expelled, or increasing the solenoid off time to increase the time that the bolt stays back to let another ball drop into the breech.

Regulator Related Problems

1. **The gauge reads correctly when charged, but climbs in pressure after a few moments.**

   a. The regulator seal has been contaminated. Disassemble the regulator, and clean the seal with a AQ-tip≅ and alcohol. If you need assistance in the Disassembly of the regulator, please call (208) 468-0446.

2. **The gauge reads correctly when charged, but drops in pressure after a few shots.**

   a. The regulator may not be adjusted correctly. Remove all pressurized gas, and back off the regulator adjustment screw 3 turns. Pressurize the system and adjust the pressure back up to the desired pressure.

3. **The gauge reads correctly when charged, but drops in pressure after a few shots, and is slow to climb back to normal pressure.**

   a. The recovery side of the regulator is sluggish and may need cleaning and lubrication. If you need assistance in the disassembly of the regulator, please call (208) 468-0446.

   b. The regulator seal needs to be replaced if it has a deep groove in it from the regulator cup.

Replacing or removing the original regulators voids all warranties.

Battery Related Problems

1. **LED functions but the marker does not fire.**

2. **Alternately missed shots.**

3. **Velocity drops while firing several shots.**

4. **Erratic Velocities. Jumps of 20 fps or more.**

5. **Unexplainable paint breakage.**

6. **Slight leak from the solenoid in the back of the grip.**

a. Change the battery. The LED only requires 1½ volts to function. The solenoid requires a minimum of 5 volts to operate. This means the marker may appear to be getting enough power when it is not. All batteries are NOT created equal. Performance will vary. ***Therefore, if you experience any erratic behavior, always change the battery first.***