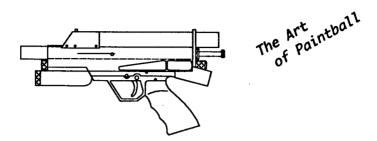
Armed Forces Trainer[™](**AFT**[™])

User Manual--version 1.0a



CAUTION

The AFT is not a toy. It can cause injury or death.

Eye protection must be worn, even for maintenance or test firing.

The compressed CO2 source used with the AFT can cause injury or death.

The AFT is not for sale to individuals under the age of 18.

The AFT is not intended for use by individuals under 18 years of age.

The AFT is to be used only as described in this manual.

Fire only 0.68 caliber paintballs from the AFT.

Check the velocity of your AFT before each use.

Read this manual before using the AFT.

The purchaser and all users of this gun acknowledge that it is a potentially dangerous instrumentality and thereby assume all risk in its use.



Include this manual if you sell or loan your AFT. (Contact your dealer, or write us at PO Box 59654, Renton, WA 98058, if you need a replacement manual.)

For service or parts, contact your dealer, or us at 206-432-5131.

The information in this manual is subject to change without notice. It is not a commitment on the part of Feral Action Sports Technology, Inc. We reserve the right to change and improve products with no obligation to modify products previously sold.

U. S. Patent No. 5,063,905; other patents pending.

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INTRODUCTION

Your AFT is a CO2-powered semiautomatic gun designed to fire 0.68 caliber paintballs supplied by removable magazines. It uses a patented valve design to achieve high efficiency and consistent firing over a very broad range of temperatures. All moving parts are hardened or hard anodized for long life. It accepts standard 12 gram cartridges and constant-air CO2 bottles.

SPECIFICATIONS

Paintball Caliber: 0.68 Action: semiautomatic

Trigger Safety: pushbutton on trigger frame Muzzle plug: supplied (PLEASE USE IT!)

Power: compressed CO2 from 12 gm cartridge or bottle

Magazine: detachable; spring loaded; holds 11 paintballs (plus three in qun)

Weight: 2.3 lbs, with CO2 cartridge and loaded magazine Barrel length: 2 inches (4 inches from chamber to muzzle)

Overall length: 13 1/2 inches (cocked)

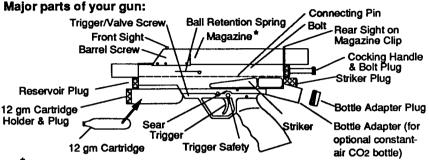
Muzzle Velocity: about 280 fps at factory; adjustable from about 150 to 350 fps

OPERATION

WARNING

Keep your gun under control. It can discharge when:

- · it is being pressurized with CO2, or being uncocked,
- · it is dropped (especially if it is not cocked), or
- · the cocking assembly is struck a sharp blow.



Remove magazine when not in use to avoid bending fingers on ball gate.

CO2 Installation and Removal

Pressurize your gun with CO2 only after you understand how to handle it safely.

Before pressurizing, check that it is cocked but not loaded. If not cocked, it can fire as it is being pressurized, or CO2 may leak until the valve cup seal seats.

12 gm CO2 Cartridge -- Two magazines (up to 25 shots) can be fired by one cartridge in normal weather if your gun is lubed and tuned. In cold, one magazine is safer.

More shots can break paintballs as the gas runs low and recock fails. To pressurize:

- A. Confirm the bottle adapter plug is installed.
- B. Cock your unloaded gun, and safe it by pushing safety button to the right.
- C. Insert the cartridge big end first (as shown above).
- D. Tighten the cartridge plug, then loosen it quickly until it locks from gas pressure.
- E. After 25 or less shots, dump the remaining gas; either fire without paintballs, or uncock and push the cocking handle forward.

Constant-Air CO2 Bottle --

- A. Remove the bottle adapter plug.
- B. Cock your unloaded gun, and safe it by pushing safety button to the right.
- C. Confirm end of bottle is clean and the O-ring is lubed.
- D. Install bottle. Tighten until just snug. The O-ring provides the seal; if a leak persists, replace it. (An optional bottom-line adapter is available.)

-CAUTION - Be Safe:-

Wear paintball-approved face protection when working on your gun.

Depressurize it unless you are about to use it, and before dissassembling it.

Don't loosen the bottle valve as you remove a bottle; you may turn the bottle into a rocket! For details on this exciting topic, see the safety centerfold.

Magazine Loading

To fill the magazine, push up to 11 paintballs through the loading gate at the front. Install by sliding the gate end onto the gun. Then snap the groove at the rear into the magazine clip.

The loading gate is delicate. If it gets bent, it won't retain paintballs when off the gun. To prevent damage:

- Don't put your finger or other foreign objects through the gate. If your finger gets stuck in the gate, see the centerfold on how to get it out!
- Don't leave the magazine on the gun when not in use; the gate can take a "set". To remove this set, pull the gate fingers back in place with a blunt hook.

The spring inside the magazine comes through the loading gate as an empty magazine is being removed. This is normal and ensures proper feeding of the paintballs. Push it back inside the gate before loading.

Cocking and Uncocking

To cock your gun, pull the cocking handle back until it latches. Be careful. If you let go before it latches, your gun can fire.

Before uncocking, remove the magazine and tilt your gun to the side so the three paintballs in the gun fall out. If you uncock with a ball in the chamber, it will be forced forward into the barrel. Later as you reload, a second ball will enter the chamber. If two balls are fired at once, they may break.

At this point, you may be tempted to look down the barrel to see if you left a paintball there. **Don't do it!!!** If you have to check, first remove the CO2, or carefully use a thin stick or pencil.

To finish uncocking, grasp the cocking assembly securely, pull the trigger, and let the assembly to move forward slowly.

Trigger Safety

Your gun has a trigger safety to help prevent accidental firing. Engage it by pushing it to the right. When the safety is to the left, a red band on the end shows the gun can be fired. The safety may not engage unless the gun is cocked. Remember, your gun is truly safe only when it is unloaded and unpressurized!

Firing

To fire your gun, point it in a safe direction and pull the trigger. It will recock and feed another paintball into the chamber. Keep clear of the ball retention spring or you may break a paintball. Keep clear of the cocking handle; it moves fast and can cause injury.

It's okay to fire your gun with CO2 but no paintballs. This breaks it in and makes it operate smoother. But to avoid gun damage minimize dry firing (without CO2).

If, when you shoot your gun it fires rapidly by itself several times, it has probably beat down and not recocked. It may also have broken a paintball. It may need CO₂ (ρ 2), lube (ρ 4), cleaning (ρ 4), tuning (ρ 8-9), or trouble shooting (ρ 10-11).

-WARNING

Wear eye protection, even when just test firing. The cocking assembly moves in line with your sighting eye and if a piece breaks off it could cause injury! When firing, stay alert — your gun will immediately recock!

Broken Paintballs

Occasionally, a ball will break in your gun. Breaks part way down the barrel may mean too much recock force (p 9). Breaks in the chamber may mean the ball retention spring needs adjustment (p 8).

KEEPING YOUR GUN OPERATING

Before each use, your gun must be cleaned, lubed, and tuned. (Tuning is on p 8-9.)

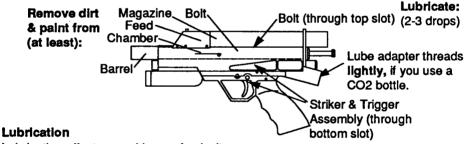
Cleaning

The barrel is best cleaned off the gun (p 5), but can be swabbed out on the gun with if the bolt is removed. Run the swab from back to front to keep dirt from the striker.

When paintball gelatin residue builds up in the barrel, clean it with a good grade of auto windshield washing fluid. This residue hurts accuracy, and is hard to see. Swab the inside with silicone after washing to help prevent gelatin buildup.

Field strip (next page) and use alcohol where needed to clean the rest of your gun. Remove the bolt O-rings to clean paint from the O-ring grooves.

Don't let dirt enter with the CO2; it can destroy the cup seal or valve body in one shot.



Lubrication affects recocking and velocity.

Gold Cup and KC Lube work well at all temperatures. If not available, use a thin oil such as WD-40; it evaporates fast so reapply often, especially in hot weather.

Don't use firearm lube such as Break-Free CLP -- it gets sticky when chilled by CO2. Lube the cocking and trigger assembly to prevent rust.

Clean/Lube Schedule

Normal Conditions	Dirty/Sandy Conditions	Action Required		
Each use	Each use	Lube as above with Gold Cup or equivalvent.		
5 days use	2 days use	Remove bolt; clean upper chamber & bolt; check bolt O-rings. Lube trigger assembly through trigger slot.		
10 days use	5 days use	Remove striker; clean lower chamber & striker; check striker O-ring for wear.		
Storage		Unpressurize; remove magazine; unload; clean; dry; lube.		

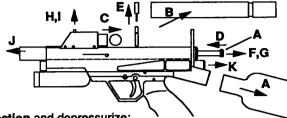
Cleaning Actions to Avoid

The following parts should not normally be removed just for cleaning:

Trigger assembly: Lube regularly on the gun; remove by airsmith for service.

Cup seal & valve body: Easily damaged when removed. In clean conditions these have lasted for more than 250,000 shots!

Reservoir (Front) Plug O-ring: Usually damaged only during removal.



Field Stripping

To field strip your gun:

A. Point it in a safe direction and depressurize:

Cartridges: uncock; push cocking handle forward to open valve (this may propel a paintball from the barrel)

Constant-air bottles: remove bottle

- B. Remove magazine.
- C. Unload the paintballs that remain in the gun.
- D. Uncock gun (if you didn't do this in A above).
- E. Pull out connecting pin with tool.
- F. Unscrew bolt plug.
- G. Remove bolt/bolt plug/cocking handle assembly through rear of gun.

(On reassembly, be sure gas hole in bolt faces down.)

Any remaining paintballs and debris can now be removed by running a swab forward through the frame & barrel.

- H,I. To loosen the barrel, remove the sight and barrel screws (don't loose them).
 - J. Pull barrel forward to remove it.

To remove the striker, do steps A-G above, then remove striker plug (K) and then the striker. Don't skip step D, or you may have to do some reassembly to get the striker out!

To replace the striker, reach down through slot in top of gun with a thin tool such as an Allen wrench and press the sear downward. The holes through the striker and bolt must be aligned to replace the connecting pin.

To avoid damaging the barrel when replacing the barrel screw removed at I above, wiggle the barrel so the hole in it aligns with the screw. The screw must be snug or the barrel will slip forward when you fire your gun. Blue thread locker (pg 12) will help hold the screw in place.

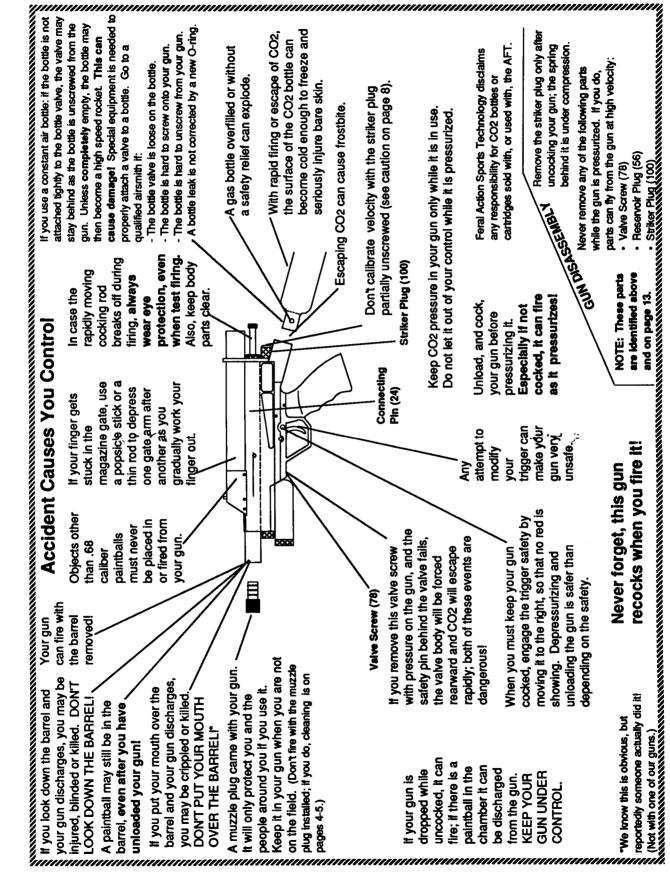
-WARNING-

Be careful; your gun can still propel a paintball at a dangerous velocity with the barrel removed!

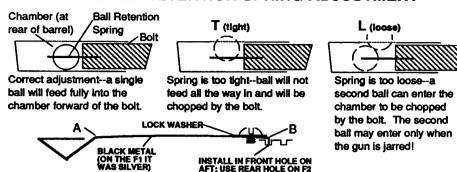
Never remove any parts except the magazine while your gun is pressurized.

-WARNING-

An unattended pressurized paintball gun is like a loaded firearm an accident waiting to happen. Never store your gun pressurized.



BALL RETENTION SPRING ADJUSTMENT



With the spring held tight by the lockwasher, and the gun cocked, the upward bow between A and B should just make point A contact the gun frame.

- T: Too much bow causes drag and won't let the ball roll freely into the chamber -- bend spring outward at point A.
- L: Too little bow lets the ball slip forward so a second ball can partially enter -- bend spring inward at point A

Adjust in small steps. Replacing the spring is often easier than adjusting it!

THEORY OF OPERATION

CO2 Reservoir Valve Body

and Pin

Bolt

.Striker

When you pull the trigger of your gun:

- · The bolt pushes a paintball forward in the barrel.
- The striker moves forward, with the bolt, to hit the valve pin.
- The valve pin is pushed forward in the valve body, releasing CO2 from the reservoir.
 - •• Most of the CO2 goes upward, through the bolt, to propel the ball.
 - .. Some goes rearward to recock the striker.

The position of the screw in the striker plug controls the total amount of gas released. The position of the screw in the dial-a-bolt controls how much gas goes to the ball or to the striker. Too much gas to the striker causes harsh recocking, wasted CO2, and broken paintballs.

NOTE: The dial-a-bolt screw acts like different valve pins on the F1, with counterclockwise [CCW] rotation and more valve pin grooves both providing more recock.

TUNING YOUR GUN

Regular tuning is essential. But don't waste time trying to tune a gun which is:

Dirty or poorly lubed (p 4 & 5)

Half the guns sent in for repair have one of these two problems!

Has a damaged striker O-ring

Low on CO2

Has the wrong O-rings installed (p 13)

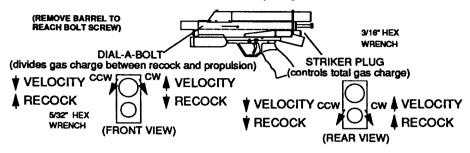
Check velocity to ensure it is not too high. It was set to about 280 fps at the factory, but it will change over time, and with temperature.

CAUTION

Do not adjust velocity with the striker plug partially unscrewed. If it is later screwed back in, the velocity may be dangerously high!

Recock and Velocity Adjustment Procedures

Recock and velocity adjust from both ends of your gun:



If your gun is badly out of adjustment, you may need to use this table several times as you close in on a perfectly tuned gun. Keep track of velocity; it tells you what to do next.

Your gun will not fund is dirty or poorly lube		A bad striker O-ring can cause low recock with normal to high velocity.		
VELOCITY	LOW	CLOSE (within 10-15 fps)	HIGH	AD-
VERY LOW Almost never recocks	Clean & lubed? Striker CW until gun recocks or velocity goes high	Striker C Bolt CCW until gun just recocks; then striker CW to increase velocity		JUST BOLT FIRST
LOW May not recock (especially when rapid firing chills gas)	Striker 2-3 turns CCW to increase recock and velocity	CCW; then striker	Bolt 2-3 turns CCW to decrease velocity and increase recock	
OKAY Always recocks (when clean and lubed)	Striker 2-3 tums CW; then bolt CW to bring velocity up	Bolt CW to increase or CCW to decrease velocity	Striker 1-2 CCW; then bolt CCW to decrease velocity	
HARSH Unpleasant to shoot; breaks paint; double fires; bolt buffer worn in only 500 shots	CW (or go to	Striker 1-3 turns CCW; then bolt CW to increase velocity		JUST RIKER ST

NOTE:

If turning bolt screw CW does not increase velocity, bolt screw may be too far CW. Turn striker screw 2-3 turns CW, then bolt screw CCW if needed to reduce velocity.

TROUBLE SHOOTING HINTS

Many guns sent for repair are dirty, poorly lubed, or have a damaged striker O-ring!

Double firing (2 or more firing cycles on a single trigger pull):

- A. Trigger mechanism is dirty--clean it.
- B. Recock force is too high--see page 9.
- C. Striker is badly worn--inspect; replace if needed
- D. Trigger mechanism is badly worn--remove (by airsmith per p 12); replace if needed.

NOTE: Double firing when your gun beats down (see below) is normal; double firing otherwise is a safety hazard and must be remedied immediately.

Gun "beats down" and fails to recock:

- A. CO2 supply is cold--give it time to warm up.
- B. CO2 supply is low--replenish it.
- C. Bolt and/or striker, are dirty or need lube--clean and lubricate. (p 4)
- D. Sticky O-rings on bolt or striker (they are torn or too hard)--install new ones. (p 12)
- E. Leaky O-rings on bolt or striker (they are torn or worn)--install new ones. (p 12)
- F. CO2 bottle valve isn't fully open--tighten bottle (don't force it); replace bottle. (p 2)
- G. CO2 bottle is too tight-- loosen it (don't force it); replace bottle. (p 2)
- H. Cup seal is partially unscrewed from valve pin--retighten it

NOTE: If none of the above apply, see recock adjustment on page 9.

Velocity drops badly and gun "beats down" during rapid firing:

Bottle valve isn't fully open--see F above.

Velocity is very erratic (>20 fps between shots):

- A. O-rings on bolt or striker are nicked or tom--install new ones. (p 12)
- B. Lube is sticky (including teflon buildup)--clean gun and apply Gold Cup. (p 4)
- C. Cup seal is loose on valve pin--retighten. T
- D. There is liquid CO2 in the gun--is your bottle overfilled?
- E. CO2 bottle valve isn't fully open--screw bottle further (don't force it); replace bottle.
- F. Your paintballs arn't round or they vary in diameter--get better paint.
- G. Barrel is dirty (gelatin residue can be very hard to see!)--clean & lube per page 4.
- H. Striker spring is bent or binding--replace it.

Accuracy is degraded:

- A. Paint residue or other moisture somewhere in gun--clean & lube per page 4.
- B. Paintball gelatin in the barrel--clean & lube per page 4.

Excessive paintball breakage:

- A. Too much recock force--see page 9.
- B. Paintball gelatin in barrel--clean & lube per page 4.
- C. Defective paintballs--get better paint.
- D. Defective barrel--polish or replace barrel.
- E. Burr on end of bolt--polish it off.

Paintball chopped in chamber by bolt:

- A. You ran out of CO2 with paintballs in gun--change CO2 supply sooner.
- B. Bad paintballs--get better paint.
- C. (during an isolated shot) Ball retention spring is misadjusted--adjust per page 8.
- D. (during rapid firing) Firing rate exceeded rate at which paintballs entered gun -- check that feed path is clear, OR replace paintball magazine, OR velocity is too high, blowing balls upward in loading chamber.

[†] Use thread locking compound on these parts as discussed on page 12.

TROUBLE SHOOTING HINTS (continued)

Bolt is jammed:

Paintball chip beside bolt--field strip per page 5.

Two balls fire on a single shot:

A. Gun was uncocked with a ball in the chamber--unload chamber first. (p 3)

B. Ball retention spring is misadjusted--adjust per page 8.

Cocking assembly/pin won't insert:

Bolt and striker are not lined up.

Rear trigger screw vibrates loose:

Oil on threads; no thread lock--see Thread Locking. (p 12)+

Groove on bolt near front:

Wear from ball retention spring-this is normal and doesn't interfere with operation.

Excessive striker O-ring damage:

Rough area inside gun--smooth it.

Very short bottle O-ring life:

A. Bottle valve releases gas during more than last 1/2 turn of bottle installation, stressing O-ring--try a different bottle.

B. O-ring and bottle threads are dry--lube them lightly.

Bottle won't release CO2:

Bottle valve is defective, or bottle is too loose or too tight.

CO2 is leaking:

- A. CO2 bottle is very loose--Remove it, then replace it and tighten until it is snug (p 2).
- B. Cup seal is bad or forced to side by cup seal guide (44)--See "Cup Seal" on p 12.
- C. Bad or dirty O-ring on: 12 gm plug; CO2 bottle; reservoir plug; forwrd end of valve body-- identify problem; remove dirt or replace; on 12 gm plug O-ring add Teflon tape.
- D. Forward lip of valve body is rough--see "Valve Body" on p 12.
- E. Bottle adapter is broken loose--factory repair.

Gun won't fire when trigger is pulled (with gun cocked and safety off):

Trigger assembly may be defective--contact airsmith or us for service (see cover).

SERVICE HINTS*

Bolt Buffer: To install a new buffer (36), clean the end of the bolt plug (38) and roughen it with sandpaper. Install the buffer with cyanoacrylic adhesive (instant glue, or super glue), OBSERVING ALL MANUFACTURER'S SAFETY PRECAUTIONS. Use enough adhesive to completely wet the surface between the buffer and plug, but not your fingers.

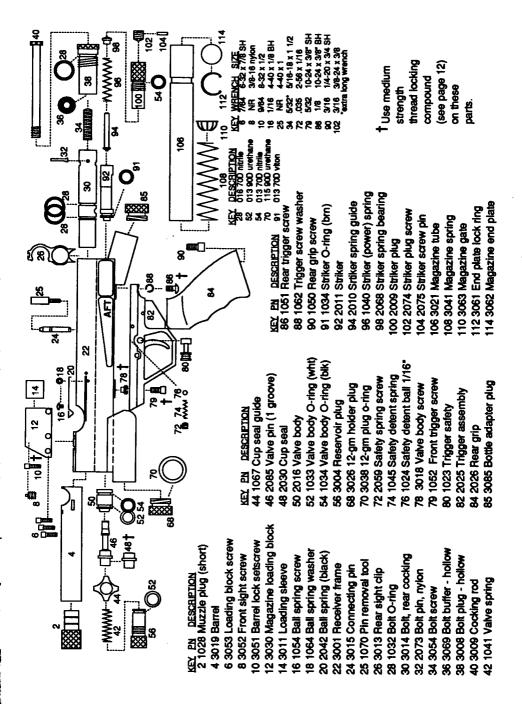
Striker Plug Screw: A nylon rod (104) in this screw (102) prevents rotation when the gun is fired. If this screw is loose, replace the nylon rod.

Connecting Pin (24): It is tool steel, and must be kept oiled or it will rust.

O-rings: The valve body O-rings will last for years if not disturbed. O-rings other than listed on page 13 can interfere with recocking or cause CO2 leakage. Keep O-rings on the bolt and striker clean; grit and dust abrade them rapidly.

*Numerals refer to part numbers on page 13.

†Use thread locking compound on these parts as discussed on page 12.



ONLY YOU CAN MAKE PAINTBALL SAFE

CAUTION--AVOID HURTING YOURSELF OR SOMEONE ELSE

- Don't pressurize this gun until you have read this manual. Especially note ways
 injuries can occur, as shown in the boxes and the centerfold.
- Wear approved eye and head protection, even when test firing. (A loose or broken cocking handle could fly off and injure your eye!)
- This gun can fire when dropped, especially if it is not cocked. Keep it unloaded and unpressurized when not in use.
- Install a muzzle plug in the barrel when not in a safe firing situation. One came with your gun. Replacements are available from your dealer or us.
- Handle this gun as if it is always ready to fire. It recocks during firing, so it may be!
- This gun can be dangerous up to 150 yards (140 meters).
- Don't shoot at opponents who are closer than 20 feet (6 meters).
- · Never shoot toward individuals not wearing approved eye and head protection.
- · Never fire any object except .68 caliber paintballs from this gun.
- · Never disassemble this gun while it is pressurized.
- Don't touch a chilled CO2 container with bare skin; frostbite can result.
- Use of this or any gun while under the influence of drugs or alcohol is a criminal disregard of public safety.
- · Never shoot at the property of others. Paint can damage surface finishes.
- Learn and follow the rules of the facility where you are using your gun.
- · Don't let this gun out of your control while it is pressurized.
- · Never store this gun while it is pressurized.
- Two very dangerous defects require immediate attention by us or a qualified airsmith:
 - 1. The CO2 bottle valve unscrews from the constant-air bottle.
 - 2. The gun double fires (other than when you are running out of CO2).
- Don't modify your gun, especially the trigger assembly.
- · Don't use any power source except compressed CO2.

ALSO, AVOID DAMAGING YOUR GUN

- Don't "dry fire" your gun (i.e., without CO2 pressure). (p 3)
- Don't use liquid CO2 (i.e., a siphon tube bottle).
- Don't overtighten the CO2 plug or bottle--let the O-ring do the sealing. (p 2)
- Don't remove the valve body unless it is seems to be causing a problem. (p 12)
- Don't damage the safety pin behind the valve body. (p 12)
- Don't use excessive recocking force. (p 9-10)
- · Don't leave a magazine on your gun when it is stored.
- Don't put your finger or a foreign object through the magazine loading gate.

This gun is delivered by Feral Action Sports Technology, Inc. with the express understanding that we assume no liability for its resale or safe handling, nor for physical injury or property damage resulting from its use.

WARRANTY INFORMATION

Limited Warranty Statement

Feral Action Sports Technology, Inc., warrants that your AFT is free from defects in materials and workmanship for a period of one year from the original date of purchase by the inital owner. (For guns used for rental, the warranty is limited to three months.) During this period, any defective parts will without charge be repaired or replaced with new, or at the option of Feral Action Sports Technology, Inc., refurbished parts. All parts replaced under this warranty become the property of Feral Action Sports Technology, Inc.

User-installable parts will be replaced upon receipt by us of the defective part and proof of purchase identifying initial gun purchase date and serial number. Otherwise, your gun must be shipped prepaid to us, with proof of date of purchase. You are responsible for shipping your gun or gun parts to us, and for insuring against loss during shipping. For detailed instructions on obtaining warranty service, phone us at 206-432-5131. Call **before** shipping your gun!

Exclusions and Limitations

This warranty does not extend to the cup seal or O-rings, nor to any parts, such as CO2 bottles or adapters, which are not manufactured by Feral Action Sports Technology, Inc., nor to any parts made defective by accident, misuse, abuse, or modification.

Except as expressly stated herein, Feral Action Sports Technology, Inc. makes no warranties, express or implied, including but not limited to any implied warranties of merchantability or fitness for any purpose beyond that for which the AFT is designed. This warranty gives you specific legal rights. You may have other rights which vary from state to state.

Feral Action Sports Technology, Inc. shall not be liable for any incidental or consequential damages arising from the use of the AFT, or from the breach of the warranty set forth herein.

PAINTBALL

Tactical training exercises with paintball must be conducted in a safe manner to avoid serious injury. A 0.68 caliber paintball moving at high velocity can cause pain and a bruise. It can break the skin and cause bleeding. If it strikes an unprotected eye, ear, or mouth it can cause blindness, deafness, or even death. If it strikes a young child in a sensitive body area, it can cause crippling or death. This is why proper safety gear for all participants, isolation of spectators from the training area, and proper handling of paintball guns are absolutely essential.

The importance of **always** following safety rules, and the risk of serious injury, require an adult level of maturity when using paintball guns. This is why sale of the AFT is limited to individuals 18 years of age and older.