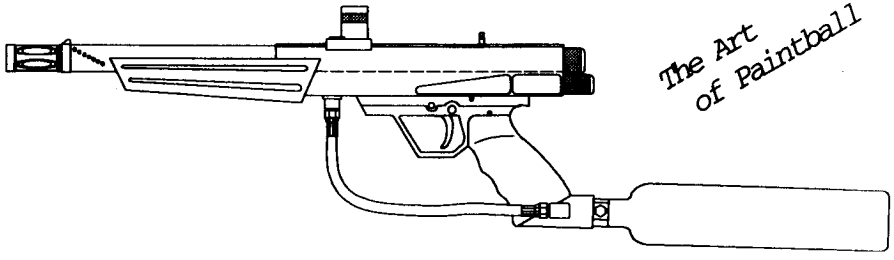
F2-Express
ILLUSTRATOR™
User Manual--version 2.2



CAUTION

The F2 is not a toy. It can cause injury or death.
Eye protection must be worn, even for maintenance or test firing.
The compressed CO_2 source used with the F2 can cause injury or death.
The F2 is not for sale to individuals under the age of 18.
The F2 is not intended for use by individuals under 18 years of age.
The F2 is to be used only as described in this manual.
Fire only 0.68 caliber paintballs from the F2.
Check the velocity of your F2 before each use.
Read this manual before using the F2.

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

PLEASE READ BACK COVER BEFORE USING

Include this manual if you sell or loan your F2. (Contact your dealer, or write us at ~~PO Box 59654, Renton, WA 98058;~~ if you need a replacement manual.)
Air Concepts Industries (ACI) at 11080 Rose Ave., Fontana CA 92337.
For service or parts, contact your dealer, or ~~us at 206-432-5131~~.
ACI at 909-350-9176 (350-4824 FAX).

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.

CONTENTS

INTRODUCTION

Your F2 *ILLUSTRATOR* is a CO_2-powered semiautomatic gun designed to fire 0.68 caliber paintballs. It uses a patented valve design to achieve high efficiency and consistent firing. All moving parts are hardened or hard anodized for long life. It accepts standard constant air CO_2 bottles and cartridge adapters.

SPECIFICATIONS

Paintball Caliber: 0.68
Action: semiautomatic
Trigger Safety: pushbutton on trigger frame
Muzzle plug: supplied (**PLEASE USE IT!**)
Power: compressed CO_2 from bottle or cartridge
Ball feed: 7/8 inch OD; accepts standard gravity feed magazine adapters
Weight: 2.0 lbs, plus magazine and CO_2 bottle or cartridge holder
Barrel length: 12 inches
Overall length: 30 inches (with 12 inch barrel and optional 7 ounce CO_2 bottle with butt plate)
Materials: Hard-anodized aluminum; hardened stainless and tool steel; glass-reinforced nylon
Muzzle Velocity: adjustable from about 150 to 350 fps (factory set to ~ 280 fps)

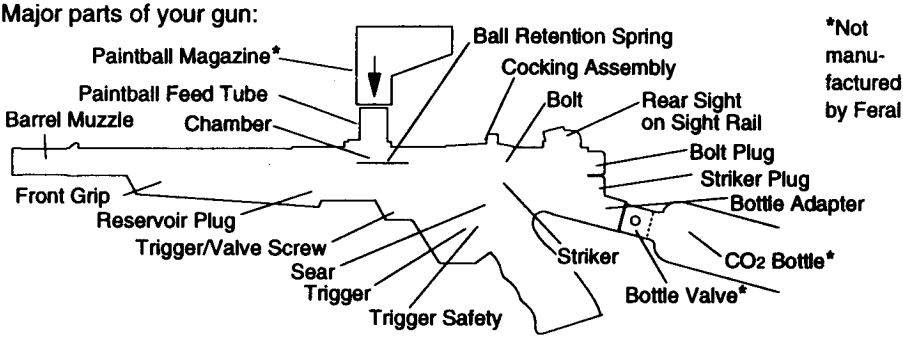
OPERATION

WARNING

Always keep your gun under control and pointed in a safe direction. It can discharge when:

- **it is being pressurized with CO_2,**
- **it is being uncocked,**
- **it is dropped (especially if it is *not* cocked), or**
- **the cocking assembly is struck a sharp blow.**

Major parts of your gun:



*Not manufactured by Feral

CO_2 Installation and Removal

Pressurize your gun with CO_2 only after you understand how to handle it safely.

Before pressurizing, check that it is cocked but not loaded. If not cocked, CO_2 may leak until the cup seal seats. **Also, if not cocked it can fire as it is being pressurized.**

Constant Air CO_2 Bottle--The bottle O-ring provides the seal, so just tighten the bottle until it is snug. You should hear a brief hiss as the bottle valve opens during the last 1/2 turn. Overtightening can damage your gun. If a leak persists, replace the bottle O-ring.

CAUTION

Be safe. Depressurize your gun (remove the bottle) **unless you are about to use it.**

WARNING

Do not unscrew the bottle from the bottle valve; you may turn the bottle into a rocket! For details on this exciting topic, see the safety centerfold, page 7.

CO_2 Cartridge Adapter--Install and remove as directed by the manufacturer.

Loading

Install a magazine on the ball feed tube. Following the directions of the manufacturer, fill the magazine with .68 caliber paintballs.

Cocking and Uncocking

To cock your gun, pull the cocking assembly rearward until it latches. Be careful. If you let go before it latches, **the gun can fire**. Also see "dry firing" below.

Before uncocking, unload. Rotate your gun to the side so paintballs in the chamber and feed tube roll back into the magazine. If you uncock with a ball in the chamber, it will be forced forward into the barrel. Later when you recock, a second ball will enter the chamber. If two balls are fired at once, they may break. See page 4 for gun cleaning.

To finish uncocking, grasp the cocking assembly securely, pull the trigger, and let the assembly to move forward slowly. (To pull the trigger, the safety must be disengaged.)

Trigger Safety

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

Firing

To fire your gun, point it in a safe direction and pull the trigger. The trigger safety must be off; that is to the left, with red showing. Keep your hand clear of the ball retention spring or you may break a paintball. Also, keep clear of the cocking assembly; it moves fast and can cause injury.

So long as your gun is not tilted too far, another paintball should feed into the chamber as it recocks.

Fire your gun as often as you like with CO_2 but no paintballs in it. This helps break it in and makes it operate smoother.

Avoid ***dry firing*** (without CO_2) -- the cocking assembly can hit the front edge of its slot, deforming the gun receiver.

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, be alert -- your gun will immediately recock!

Failure to Recock

If, when you shoot your gun it seems to fire several times in rapid succession, it has probably "beat down" and not recocked. It may need CO_2 (p 2), lube (p 4), cleaning (p 4), tuning (p 8-9), or trouble shooting (p 10-11).

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). Cleaning is covered on the next page.

KEEPING YOUR GUN OPERATING

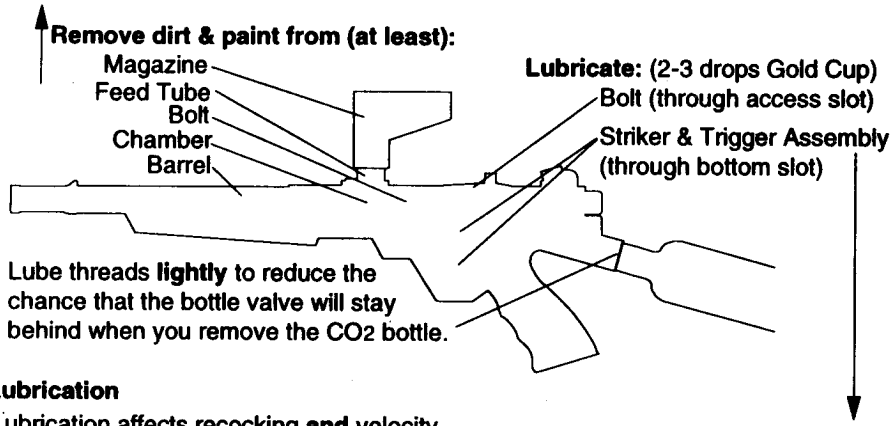
Before each use, your gun must be cleaned, lubed, and tuned. (Tuning is on p 8-9.)

Cleaning

To clean the barrel, remove (A-E, p 5) and swab it **toward the rear** to keep paint out of the slots. When paintball gelatin residue builds up, clean with a good grade of car 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.

Keep the bottle valve and adapter clean; dirt entering here can destroy the cup seal or valve body in one shot.



Lubrication

Lubrication affects recocking **and** velocity.

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

Firearm lubricants such as Break-Free CLP do **not** work well -- they can get sticky when chilled by CO_2.

Lube the metal pin in the cocking assembly, and inside the trigger assembly, to keep them moving freely and prevent rust.

Clean/Lube Schedule

Normal Conditions	Dirty/Sandy Conditions	Action Required
1,000 shots	500 shots	Lube with Gold Cup or equivalvent.
3-4,000 shots	1-2,000 shots	Remove bolt; clean upper chamber & bolt; check bolt O-rings. Lube trigger assembly through trigger slot.
20-30,000 shots	5-10,000 shots	Remove striker; clean lower chamber & striker; check striker O-ring for wear.
Storage		Unpressurize; unload; clean and dry; lube.

WARNING

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

Cleaning Actions to Avoid

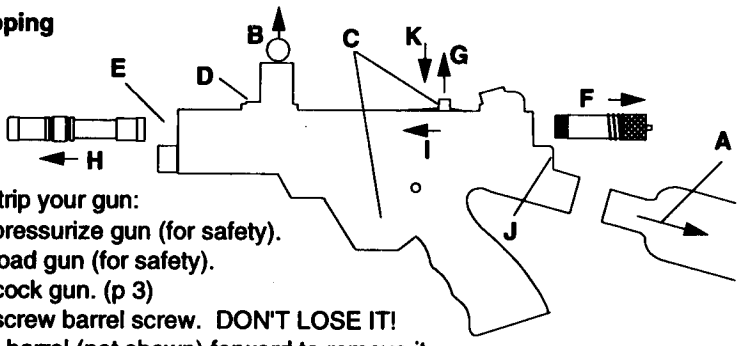
The following parts should not normally be removed just for cleaning:

Trigger assembly: Lube regularly on the gun; remove by an airsmith only 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. Depressurize gun (for safety).
B. Unload gun (for safety).
C. Uncock gun. (p 3)
D. Unscrew barrel screw. DON'T LOSE IT!
E. Pull barrel (not shown) forward to remove it.
F. Unscrew bolt plug.
G. Pull cocking assembly from gun **(You did A & C, didn't you?)**.
H. Remove bolt through front of gun (to keep debris away from striker).
I. Swab bolt chamber toward the front (to keep debris away from striker).

To remove the striker, do steps A-C and G above, then remove striker plug (J).

To replace the striker, reach down through slot (K) with a thin tool such as an Allen wrench and press sear downward. The holes through the striker and bolt must be aligned to replace the cocking assembly.

The barrel screw (D above) must be snug or the barrel will slip forward when you fire your gun.

WARNING

Be careful; your gun can still propel a paintball at a dangerous velocity with the barrel removed!
Never remove any parts except the barrel while your gun is pressurized.

Valve Pin Wear

The valve pin (48 on p 13) should never wear out so long as the cup seal guide (46) is kept installed.

Accident Causes You Can Control

Objects other than .68 caliber paintballs must never be placed in or fired from your gun.

A paintball may still be in the barrel, **even after you have unloaded your gun!**

Your gun can still shoot with the barrel removed.

If you look down the barrel and your gun discharges, you may be injured, blinded or killed. DON'T LOOK DOWN THE BARREL!

A muzzle plug is supplied with your gun. It will only protect you and the people around you if you use it. Keep it in your gun when you are not on the playing field. (Don't fire the gun with the muzzle plug installed; if you do, field stripping and cleaning are covered on pages 4-5.)

If you put your mouth over the barrel and your gun discharges, you may be crippled or killed. DON'T PUT YOUR MOUTH OVER THE BARREL!*

In case part of the rapidly moving cocking assembly breaks off during firing, **always wear eye protection, even when test firing.** Also, keep body parts clear.

If you remove this trigger/valve screw with pressure on the gun, and the safety pin behind the valve fails, the valve body will be forced rearward and CO_2 will escape rapidly; both of these events are dangreous!

When you must keep your gun cocked, engage the trigger safety by moving it to the right, so that no red is showing. Unloading and depressurizing the gun is safer.

Any attempt to modify your trigger can make your gun very unsafe.

Unload, and cock, your gun before pressurizing it. **Especially if not cocked, it can fire as it is being pressurized!**

Keep pressure on your gun only while it is in use. Do not let it out of your control while it is pressurized.

Do not calibrate velocity with the striker plug partially unscrewed (see caution on page 9)

If your CO_2 bottle is not attached tightly to the bottle valve, the valve may stay behind as the bottle is unscrewed from the gun. Unless **completely** empty, the bottle may then become a high speed rocket. **Serious accidents have happened in this way!** Proper procedure and equipment are needed to properly attach a valve to a bottle. Take your bottle and gun to a qualified airsmith immediately if:

- The bottle valve seems to be loose on the bottle.
- The bottle is hard to screw onto your gun.
- The bottle is hard to unscrew from your gun.
- A bottle leak is not corrected by a new O-ring.

(Feral Action Sports Technology disclaims any responsibility for CO_2 bottles or cartridge adapters sold with, or used with, the F2 *ILLUSTRATOR*.)

An overfilled gas bottle can explode.

With rapid firing or escape of CO_2, the surface of the CO_2 bottle can become cold enough to freeze and seriously injure bare skin.

A bottle without a safety relief on the valve can explode.

CO_2 can cause frostbite at high rates of escape.

Remove the striker plug only after uncocking your gun; the spring behind it is under compression.

Never forget, this gun recocks when you fire it!

If your gun is dropped while uncocked, it can fire; if there is a paintball in the chamber it can be discharged from the gun. KEEP YOUR GUN UNDER CONTROL.

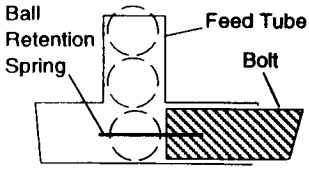
*We know it is ridiculous to print such an obvious warning, but apparently someone actually risked a serious injury by doing this! (Not with an F1 or F2)

NOTE: The parts referred to here are identified in the drawing above and on page 13.

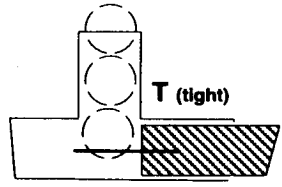
Never remove any of the following parts while the gun is pressurized. If you do, parts can fly from the gun at high velocity:

- Front Trigger/Valve Screw
- Reservoir Plug
- Striker Plug

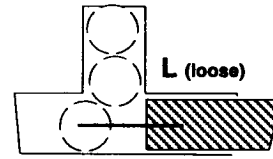
BALL RETENTION SPRING ADJUSTMENT



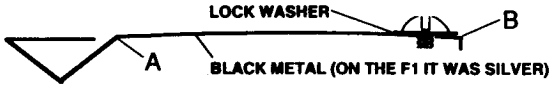
Correct adjustment--a single ball will feed fully into the chamber forward of the bolt.



Spring is too tight--ball will not feed all the way in and will be chopped by the bolt.



Spring is too loose--a second ball can enter the chamber to be chopped by the bolt. The second ball may enter only when the gun is jarred!



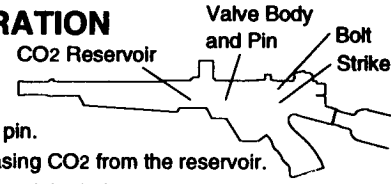
With the spring held tight by the lockwasher, and the gun cocked, the upward bow between A and B should just make point A contact the gun frame.

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. Often, replacing the spring is easier than adjusting it!

THEORY OF OPERATION



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 CO_2 from the reservoir.
  - Most of the CO_2 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 CO_2, 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:

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

- Dirty or poorly lubed (p 4 & 5)
- Has a damaged striker O-ring
- Low on CO_2
- Has the wrong O-rings installed (p 13)

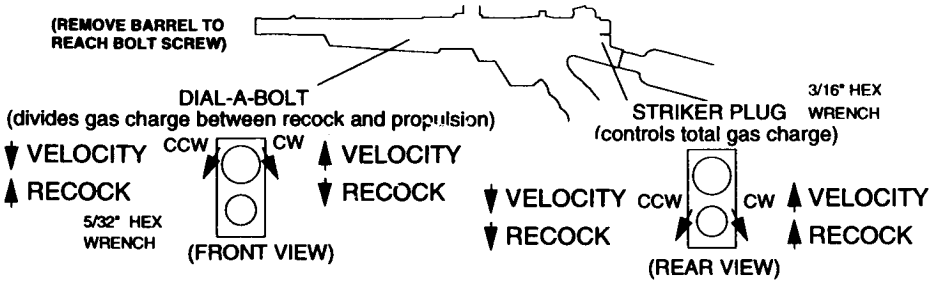
Check velocity to ensure it is not too high. It was set to about 280 fps at the factory, but it will change over time, and with temperature.

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 function if it is dirty or poorly lubed. (p 4-5)

A bad striker O-ring can cause low recock with normal to high velocity.

RECOCK \ VELOCITY	LOW	CLOSE (within 10-15 fps)	HIGH
	Clean & lubed?	Striker O-ring OK?	
VERY LOW Almost never recocks	Striker CW until gun recocks or velocity goes high	Bolt CCW until gun just recocks; then striker CW to increase velocity	Bolt CCW until velocity is okay; if still no recock go here
LOW May not recock (especially when rapid firing chills gas)	Striker 2-3 turns CCW to increase recock and velocity	Bolt 1-2 turns CCW; then striker CW to increase velocity	Bolt 2-3 turns CCW to decrease velocity and increase recock
OKAY Always recocks (when clean and lubed)	Striker 2-3 turns 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	Bolt 3-4 turns CW (or go to lower number valve pin)	Striker 1-3 turns CCW; then bolt CW to increase velocity	Striker 3-4 CCW to reduce total gas charge

ADJUST BOLT FIRST

ADJUST STRIKER FIRST

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

Half the guns sent in for repair are dirty, poorly lubed, or have a damaged striker O-ring! Check these items first.

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 (J on page 5); 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. CO_2 supply is cold--give it time to warm up.
B. CO_2 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. CO_2 bottle valve isn't fully open--tighten bottle (don't force it); replace bottle. (p 2)
G. CO_2 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 torn--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.†
D. There is liquid CO_2 in the gun--is your bottle overfilled?
E. CO_2 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. Bad paintballs--get better paint.
B. (during an isolated shot) Ball retention spring is misadjusted--adjust per page 8.
C. (during rapid firing) Firing rate exceeded rate at which paintballs entered gun -- check that feed path is clear, OR replace paintball magazine with one which will feed paintballs into gun faster, OR velocity is too high, blowing balls upward in feed tube.

† 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 CO_2:
Bottle valve is defective, or bottle is too loose or too tight.

CO_2 is leaking:
A. CO_2 bottle is very loose--Remove it, then replace it and tighten until it is snug (p 2).
B. Cup seal is forced to the side by the cup seal guide (46)--See "Cup Seal" on p 12.
C. Bottle O-ring; cup seal; reservoir plug O-ring; or valve body *forward* O-ring is defective or displaced by dirt--identify problem; remove dirt or replace bad part.
D. Forward lip of valve body is rough--see "Valve Body" on p 12.
E. Bottle adapter is broken loose--replace gun (see cover).
F. Leak through hole in lower front face of receiver--factory repair (see cover).

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.

Bolt and Striker Plug Screws: Plastic rods (34, 96) in these screws (32, 94) prevent rotation when the gun is fired. If a screw is loose, replace the rod.

Cocking Assembly/Pin (22): 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 shown on page 13 can interfere with recocking or cause CO_2 leakage. Keep the O-rings on the bolt and striker clean; grit and dust abrade them rapidly.

*Numerals refer to part numbers on page 13.

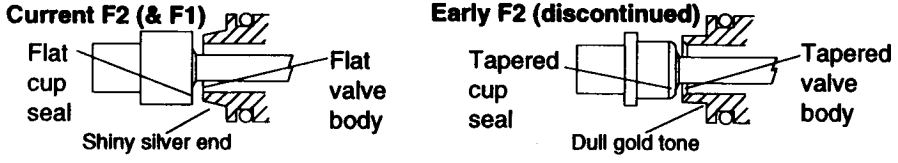
†Use thread locking compound on these parts as discussed on page 12.

Trigger Assembly: Keep this assembly clean, and the metal parts oiled, to prevent rust. (p 4) There are no user serviceable parts in the trigger assembly.

- **Removal(Δ):** First, depressurize and uncock gun; then remove the rear trigger and front trigger/valve screws (74,64). (To remove stubborn thread-locked screws, see below.) The trigger/valve screw at the front of the trigger assembly also holds the valve body in place; **if you really mess up and remove it while the gun is pressurized, and if the safety pin behind the valve body fails, (see Valve Body below) a lot of CO2 will dump very fast and the gun will get very cold!**
- **Reinstallation(Δ):** Apply medium strength thread lock on rear screw; tighten.†

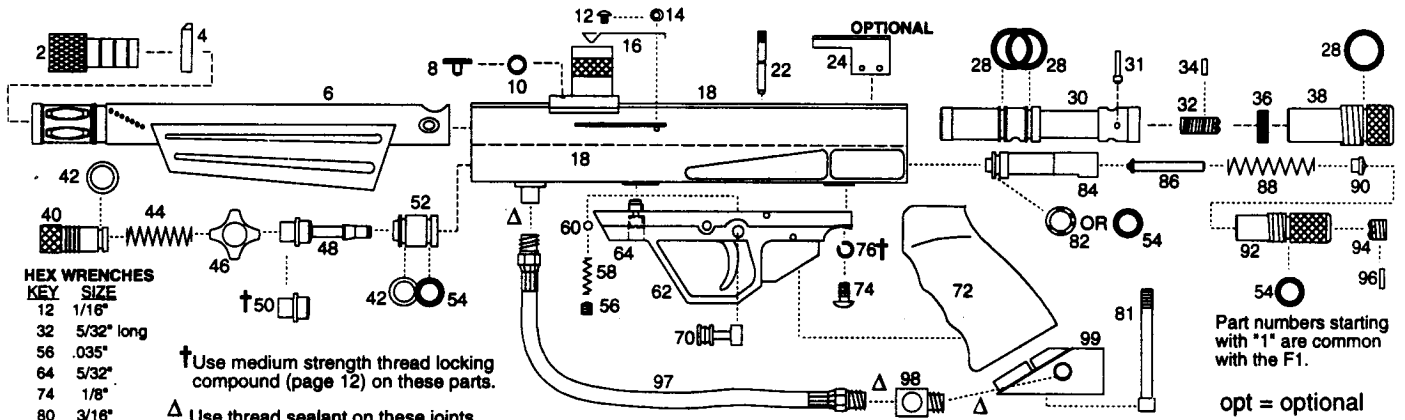
Cup Seal: If exposed to dirt, the cup seal (50) will wear rapidly. If the cup seal guide (46) is tight on the cup seal, it can force the seal to the side, causing the valve to leak.

Valve Body(Δ): A. To extend valve body O-ring life, don't remove the valve body (52). **B. Depressurize your gun before removing the trigger/valve screw** at the front of the trigger assembly (64). A safety pin just behind the valve body should prevent it from being shot from the rear of the gun if you really mess up and remove both this screw and the striker plug (92) while the gun is pressurized. However, if the valve body is forced repeatedly against this safety pin, it may fail just when you need it. Because of this pin, the valve body is removed and installed through the front of the gun. **C.** The sealing surface of the valve body must be very smooth for the plastic cup seal to seat against it. Hence, a bad valve body must usually be replaced. **D.** Only the front O-ring (42) seals high pressure CO2 and hence must be hard urethane; almost any material can be used in the rear valve body groove. **E.** The cup seal and valve body currently have a flat sealing surface. (See below.) On some early F2s, this surface was tapered. To determine which is in your gun, remove the reservoir plug (40) and compare to the diagram below. The cup seal and valve body can be interchanged between the F1 and F2, but only as a cup seal/valve body pair.



Thread Locking: Use **medium** strength thread locking compound such as Perma Lok™ MM115 (blue) or LocTite™ 242 (blue) to ensure the following parts do not vibrate loose: rear trigger screw (74), and cup seal (50). First, clean any oil, and **especially any silicone**, from the screw and the screw hole. Brake degreasing compound available from auto parts strores, is effective, but be careful -- it may be toxic. Setup time for these compounds is extended by cold, and even at 75 degrees F can require a full day. **During removal, do not force a screw installed with thread lock compound which will not turn.** Instead, first apply heat directly to the screw with a soldering iron.

*Numerals refer to part numbers on page 13.
ΔThese service operations should be performed only by a qualified airsmith.
†Use thread locking compound on these parts as discussed on bottom of page.



KEY PN DESCRIPTION

- 2 2028 Muzzle Plug
- 4 2081 Front Sight
- 6 2019 Barrel
- 8 2058 Barrel Screw
- 10 2036 O-ring, 2-003, 70D (very small, soft, black nitrile)
- 12 1054 Ball Spring Screw (4-40 x 1/8" button head)
- 14 1064 Ball Spring Washer (#4 external star)
- 16 2042 Ball Retention Spring (black)
- 18 NA Receiver
- 22 2012 Cocking Assembly/Pin
- 24 2083 Sight Rail Extender (opt)
- 28 1032 O-ring, 2-016, 70D (large, soft, black nitrile)

KEY PN DESCRIPTION

- 30 2014 Bolt
- 31 2073 Bolt Pin (.093" x .73" NYLON)
- 32 2071 Bolt Screw (5/16-24 x 3/4")
- 34 2072 Bolt Screw Pin (.093" x .31" NYLON)
- 36 1069 Bolt Buffer
- 38 1008 Bolt Plug
- 40 1007 Reservoir Plug
- 42 1033 O-ring, 2-013, 90D (small, hard, white urethane)
- 44 1041 Valve Spring
- 46 1067 Cup Seal Guide (guide must be loose on seal; see p 12)
- 48 2017 Valve Pin (1 groove)
- 50 2030 Cup Seal†

KEY PN DESCRIPTION

- 52 2016 Valve Body
- 54 1034 O-ring, 2-013, 70D (small, soft, black nitrile)
- 56 2059 Safety Spring Screw (2-56 x 1/16")
- 58 1045 Safety Detent Spring
- 60 1024 Safety Detent (.067" ball)
- 62 2025 Trigger Assembly
- 64 NA FrontTrigger/Valve Body Screw (part of # 62)
- 70 1023 Trigger Safety
- 72 2026 Rear Grip
- 74 1051 Rear Trigger Screw† (10-24 x 3/8" BH)
- 76 1062 Trigger Washer (#10 split lock)

KEY PN DESCRIPTION

- 81 4050 Rear Grip Screw (1/4-20 x 4" skt head)
- 82 1034T O-ring, 2-013, 75D (small, soft, brown Viton)
- (or) 1034U O-ring, 2-013, 70D (small, soft, white urethane with black marks)
- 84 2011 Striker
- 86 2010 Striker Spring Guide
- 88 1040 Striker Spring
- 90 2068 Striker Spring Bearing
- 92 2009 Striker Plug
- 94 2074 Striker Plug Screw (3/8-24 x 3/8")
- 96 2075 Striker Screw Pin (.093" x .38" NYLON)
- 97 4006 Bottom Line Hose Δ
- 98 4005 Bottom Line Elbow Δ
- 99 4004 Bottom Line Adapter Δ

ONLY YOU CAN MAKE PAINTBALL SAFE

CAUTION--AVOID HURTING YOURSELF OR SOMEONE ELSE

- Do not 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. **(Part of a broken cocking assembly 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 actually playing. One is included 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.
- Do not touch a chilled CO_2 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 field where you are playing.
- Do not 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 CO_2 bottle valve unscrews from the bottle.
  2. The gun double fires (other than when you are running out of CO_2).
- Do not modify your gun, especially the trigger assembly.
- Do not use any power source except compressed CO_2.

ALSO, AVOID DAMAGING YOUR GUN

- Do not "dry fire" your gun (i.e., without CO_2 pressure). (p 3)
- Do not use liquid CO_2 (i.e., a siphon tube bottle).
- Do not overtighten the CO_2 bottle--let the O-ring do the sealing. (p 2)
- Do not remove the valve body unless it is seems to be causing a problem. (p 12)
- Do not damage the safety pin behind the valve body. (p 12)
- Do not use excessive recocking force (p 9-10)

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 F2-Express *ILLUSTRATOR* is free from defects in materials and workmanship for a period of six months 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!

ACI at 909-350-9176 (350-4824 FAX).

Exclusions and Limitations

This warranty does not extend to the cup seal or O-rings, nor to any parts, such as CO_2 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 F2 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 F2 or from the breach of the warranty set forth herein.

THE SPORT OF PAINTBALL

The sport of paintball involves action pursuit games in which opposing players attempt to shoot each other with dye-filled projectiles called "paintballs". Paintball is a serious sport which makes rigorous demands on players' physical and mental abilities. When played in a safe manner, it can provide a rewarding experience not available in any other sport.

There are hazards in any active sport such as paintball. Serious injuries are rare, but do occur.

A 0.68 caliber paintball moving at high velocity adds a special dimension of hazard to paintball sports. At a minimum, it 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 players, isolation of spectators from the play 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 F2 is limited to individuals 18 years of age and older.

If after reading this you do not want to assume the risk of playing paintball, please return your F2 to your dealer. If you have difficulty returning it, please contact ~~us at 206-432-5131~~.

ACI at 909-350-9176 (350-4824 FAX).