

F4 Illustrator™



OWNERS MANUAL & REFERENCE GUIDE

Serial Number: _____
Date Purchased: _____
Dealer: _____

U. S. Patent No.
5,063,905

Other Patents
Pending

AEI sports

CAUTION

- Read the entire manual before using the F4 Illustrator.
- The F4 is not a toy. It can cause serious injury or death.
- Wear approved eye and head protection, even when test firing.
- The compressed air source used with the F4 can cause serious injury or death.
- Sale or use of the F4 Illustrator is not intended for individuals under the age of 18.
- The F4 is to be used only as described in this manual.
- Fire only 0.68 caliber paintballs from the F4.
- Check the velocity of your F4 before each use. Not to exceed 300 fps.
- The F4 can fire when dropped.
- Keep the F4 unloaded and unpressurized when not in use.
- Install a barrel plug in the barrel when not in use. (One is included with the F4.)
- Replacement barrel plugs are available from your ACI dealer.
- Handle the F4 as if it is always ready to fire. It recocks during firing.
- The F4 can be dangerous up to 200 yards (180 meters).
- Don't shoot at opponents closer than 20 feet.
- Never shoot toward individuals not wearing approved eye and head protection.
- Never disassemble the F4 while it is pressurized.
- Do not touch a chilled CO2 container with bare skin; frostbite can occur.
- Using the F4 while under the influence of drugs or alcohol is disregard of public safety.
- Never shoot at the property of others.
- Learn and follow the rules of the field where you are playing.
- Always maintain control of the F4 while it is pressurized.
- Never store the F4 while it is pressurized.
- Two very dangerous defects require immediate attention by your dealer or qualified armsmith:
 1. The air source bottle valve unscrews from the bottle.
 2. The gun double fires (other than when you are running out of air).
- Do not modify your gun, especially your trigger assembly.

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SPECIFICATIONS

CALIBER

- 0.68 Paintballs Only

BLOWBACK SEMI-AUTOMATIC POWERED BY

- Compressed CO2
- Regulated Compressed Air
- Regulated Nitrogen

WEIGHT

- 2.42 lbs. (not including loader or air source)

FULLY ENCLOSED MAIN BODY

- No Exposed Moving Parts
- Polished Anodized Aluminum With Custom Side Cuts
- Patent Pending Quick Slide Cocking
- Industry Standard Sight Rail
- Aluminum Ball Retaining Side Plate
- Laser Engraved Graphics

BALL FEED

- Powerfeed Design To Increase Feed Rate
- 7/8 inch O.D; accepts standard feed loader adapters

MUZZLE VELOCITY

- 180 fps to 330 fps
- Adjustable - External
- Self-Locking

BARREL

- Aircraft Quality Aluminum
- Microhoned and Polished

VALVE PATENT #5,063,905

- Stainless Steel
- Patented Sub Zero Antifreeze Technology
- High Performance

45 GRIP ONE-PIECE TRIGGER FRAME

- Ergonomic "Point And Shoot" Design
- Accepts Standard 45 Grip Pads
- Complies With Industry Standard 2 Hole Bottomline
- Reflex Trigger Action With 2.2 lb. Pull
- Laser Cut Tool Steel Trigger & Sear
- Trigger Shoe - Anodized Aluminum
- Push Button Positive Lock Safety

VERTICAL ADAPTER

- Accepts Standard Aftermarket Accessories
- Easily Converts To Vertical Style

OPTIONAL ACCESSORIES *(If Equipped)*

- Zero-Gravity Barrel
- Sub Zero Expansion Chamber
- High Volume Cell
- Venturi Bolt With Adjustable Recock

OPERATION

Before pressurizing, check that the F4 is cocked but not loaded. **If not cocked, air may leak until the cup seal seats. Also, if not cocked the F4 can fire as it is being pressurized.**

Cocking

To cock the F4, pull the cocking knob rearward until it latches. Be careful, if you let go before it latches, the F4 can fire. **DO NOT DRY FIRE THE F4.** (To pull the trigger, the safety must be disengaged.)



Air Source Installation

Once the F4 is properly cocked with the safety on you can pressurize it with CO₂, regulated compressed air or nitrogen. Only after you understand how to handle it safely should you attempt to pressurize your F4.

Proper Seating of Air Source

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. Over tightening can damage the F4. If a leak persists, replace the bottle O-ring.



CAUTION

Be safe! Depressurize the F4 (remove the bottle) unless you are about to use it. Do not unscrew the bottle from the bottle valve; you may turn the bottle into a rocket!

Loading

Install a 7/8 elbow and loader on the ball feed tube. Following the directions of the manufacturer, fill the loader with .68 caliber paintballs.

Trigger Safety

The F4 has a trigger safety to help prevent accidental firing. With the F4 pointing away from you, engage the safety by pushing it to the right. When the safety is toward the left the F4 can then be fired. The safety may not engage unless the F4 is cocked. Remember, the only time the F4 is truly safe is when it is unloaded and depressurized

Firing

To fire the F4, point it in a safe direction, away from yourself, and pull the trigger. The trigger safety must be off; that is to the left. Fire the F4 as often as you like with air, with or without paintballs in it. This helps break it in and makes it operate smoother.

WARNING

Avoid dry firing (without air) — damage to the valve body, stop pin, and cup seal can occur.

Uncocking

Before uncocking, unload. Rotate your gun to the side so paintballs in the chamber and elbow roll back into the loader. Take a couple of shots in a safe direction to insure that the barrel is empty. 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. To finish uncocking, unscrew the air source, pull back the cocking knob, pull the trigger and let the assembly move forward slowly. **DO NOT DRY FIRE THE F4.** (To pull the trigger, the safety must be disengaged.)



Air Source Removal

Once the F4 is properly uncocked with the safety on you can depressurize it. To depressurize the F4, slowly unscrew the air source paying special attention to the bottle valve. **DO NOT UNSCREW THE BOTTLE VALVE FROM THE BOTTLE. UNSCREWING THE VALVE COULD CAUSE SERIOUS INJURY OR DEATH.**

TUNING YOUR GUN

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

- Dirty or poorly lubed
- Has a damaged striker O-ring
- Low on air
- Has the wrong O-rings installed

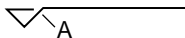
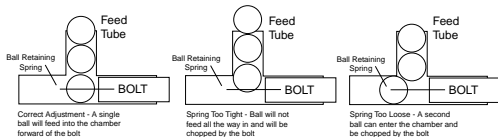
Check velocity to ensure it is not too high. It was set to 260 fps at the factory, but it will change over time, and with temperature.

Ball Retaining Spring Adjustment

With the spring held in by the plate, and the gun cocked, the upward bow of the spring should just make point A contact the gun frame.

Tight: Too much bow causes drag and won't let the ball roll freely into the chamber - bend spring outward at point A.

Loose: Too little bow lets the ball slip forward so a second ball can partially enter - bend spring inward at point A



CAUTION

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

Velocity Adjustment Procedures

Before adjusting velocity make sure the striker plug is screwed in all the way. Your gun must be properly lubricated and free of all dirt and debris.

Insert 3/16 hex wrench (provided) into the velocity adjustment screw located in the striker plug as shown in the diagram below. Turn clockwise to increase velocity. Turn counter clockwise to decrease velocity. Check your velocity on a reliable chronograph every quarter turn until desired velocity is reached.

Note: If the velocity screw is loose, replace the anti-drift pin (provided).



FIELD MAINTENANCE

Before each use, your gun must be cleaned, lubed, and tuned.

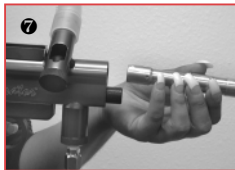
Field Stripping

To field strip your gun (refer to illustrations):

1. Depressurize gun (remove air source)
2. Unload gun
3. Uncock gun
4. Unscrew barrel
5. Unscrew bolt plug and remove bolt plug buffer.
6. Screw threaded end of bolt plug into connecting pin access hole located in center hole of sight rail and pull connecting pin straight out from gun.
7. Remove bolt through front of gun.
8. Swab bolt chamber back to front



Reverse order for reassembly.



ACCIDENT CAUSES YOU CAN CONTROL

WARNING

If the valve on your bottle is not attached properly, the valve may stay behind as the bottle is unscrewed the gun and cause serious injury or death. Proper procedures and equipment are required to properly attach a valve to a bottle. *Take your bottle to a qualified airmith if:*

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

During play with CO₂ in colder areas, rapid firing or escape of air, the surface of your bottle can become cold enough to freeze and seriously injure bare skin.

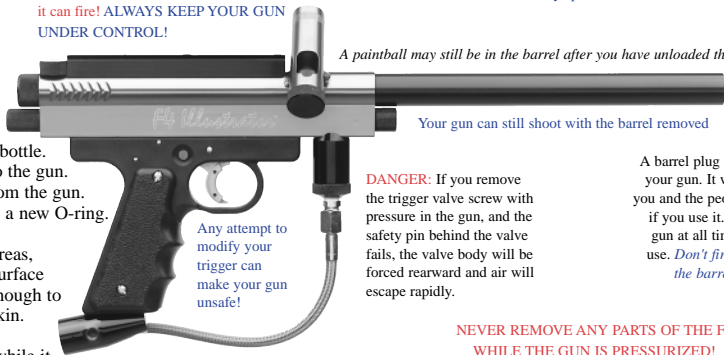
Keep pressure on your gun only while it is in use. Always keep your gun under control when it is pressurized.

An overfilled bottle can explode.

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

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

If your gun is dropped while pressurized, **it can fire!** ALWAYS KEEP YOUR GUN UNDER CONTROL!



Any attempt to modify your trigger can make your gun unsafe!

When you must keep your gun cocked, engage the trigger safety by moving it to the right. Unloading and depressurizing the gun is always safer.

Never put anything in front of the barrel. Always point the F4 in a safe direction.

A paintball may still be in the barrel after you have unloaded the gun!

Your gun can still shoot with the barrel removed

DANGER: If you remove the trigger valve screw with pressure in the gun, and the safety pin behind the valve fails, the valve body will be forced rearward and air will escape rapidly.

A barrel 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 at all times when not in use. *Don't fire your gun with the barrel plug in place.*

NEVER REMOVE ANY PARTS OF THE F4 WHILE THE GUN IS PRESSURIZED!
NEVER FORGET, THIS GUN RECOCKS WHEN FIRED.
NEVER LOOK DOWN THE BARREL!

Unload and cock your gun before pressurizing. **YOUR GUN CAN FIRE DURING PRESSURIZING IF NOT COCKED!**

...remember, the future of paintball is in your hands. Please play responsibly and have fun.

MAINTENANCE

AIR SOURCE MUST BE REMOVED BEFORE ANY MAINTENANCE CAN BE PERFORMED

Barrel

To clean the barrel, unscrew it from the main body and swab toward the rear. When paintball gelatin residue builds up, clean with warm soapy water or rubbing alcohol. Residue build up hurts accuracy.

Upper Chamber

Field strip as described on page 7 and use warm soapy water or rubbing alcohol where needed to clean the rest of your F4. Remove the bolt O-rings to remove paint and dirt build up 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.

Lower Chamber

To clean the lower chamber see steps 1-8 on page 7, then remove striker plug, striker spring and guide pin.

Remove bottomline from trigger housing by removing the two screws holding it to the grip.

Remove front / rear trigger housing screws and washers and

remove trigger housing. (Notice front screw is longer with a pilot on it to secure the valve body.)

Slide striker out the rear of the gun. If needed, insert a small object into the bottom slot of the main body, to assist in sliding the striker out the rear of the gun.

Clean all major components of the gun.

Inspect all O-rings and replace as needed.

Apply AIRLUBE™ upon assembly of all moving parts.

Reassemble parts in reverse order, making sure to include trigger housing washers. Be very careful not to force parts back together, or permanent damage may occur.

The following parts should not be removed for routine maintenance:

Sight Rail / Quick Slide Cocking System

The sight rail should only be removed by a qualified airsmith.

Cup Seal And Valve Body

Easily damaged when removed. In clean conditions these have lasted for more than 250,000 shots. If exposed to dirt, the cup seal will wear rapidly. If the cup seal guide is tight on the cup seal, it can force the seal to the side, causing the valve to leak.

Reservoir / Front Plug O-ring

Usually damaged only during removal

CLEANING SCHEDULE

- Every 500-1000 shots
 - Lubricate with AIRLUBE™
- Every 1-3,000 shots
 - Remove bolt
 - Clean upper chamber and bolt
 - Check bolt O-rings
 - Lubricate trigger assembly
- 7500-25,000 shots
 - Remove striker
 - Clean striker and lower chamber
 - Check striker O-ring for wear
- Storage
 - Unpressurize and Unload
 - Clean and Dry
 - Lube

In the event of a ball break within the gun, the Field Strip procedure on page 7.

This schedule may need to be revised depending on the playing conditions.

Lubrication

Lubrication affects recocking and velocity. AIRLUBE™ (provided) works well at all temperatures.

DO NOT USE FIREARM LUBRICANTS. THEY CAN GET STICKY WHEN CHILLED BY CO2 OR COLD WEATHER.

SERVICE HINTS

Bolt Pin and Velocity Adjustment Screw

Nylon pins in these areas prevent movement when the gun is fired. If the connecting pin or velocity adjustment screw is loose, replace the nylon pins (supplied) by pressing them out.

Cocking Assembly Pin

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. Improper O-rings can interfere with recocking or cause air leakage. Keep the O-rings on the bolt and striker clean; grit and dust abrade them rapidly.

Trigger Assembly

Keep the assembly clean and the metal parts oiled to prevent rust. There are no user-serviceable parts inside the trigger assembly.

Valve Body

To extend valve body life, **DO NOT REMOVE IT!** There is a safety stop pin pressed into the main body to prevent the valve body from moving backwards. If the valve body must be removed, it should be pushed out the front of the gun with a long nylon rod or equivalent to prevent damage to the inside of the valve chamber. Make a note of orientation before removal of the valve body to ensure proper assembly. Properly lube and inspect O-rings before reinstalling valve body. (Refer to diagram on Pg 14)

TROUBLESHOOTING

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):

- Trigger mechanism is dirty - clean it.
- Recock force is too high - Adjust front valve spring.
- Striker is badly worn - inspect and replace if worn.
- Trigger is badly worn - remove (by airsmith); replace if needed.
- Sear is badly worn - remove (by airsmith); replace if needed.
- Sear spring has fallen off or is broken - fix or replace.

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

Gun “beats down” and fails to recock:

- Air supply is cold—give it time to warm up.
- Air supply is low—replenish it.
- Bolt and/or striker, are dirty or need lube - clean and lubricate.
- Sticky O-rings on bolt or striker (they are torn or too hard) - install new ones.
- Leaky O-rings on bolt or striker (they are torn or worn) - install new ones.
- Air bottle valve isn't fully open - tighten bottle (don't force it); replace bottle.
- Air bottle is too tight - loosen it (don't force it); replace bottle.
- Cup seal is partially unscrewed from valve pin - retighten it.
- Velocity adjustment screw is too far in - unscrew and chronograph.

Velocity drops and gun “beats down” during rapid firing:

- Bottle valve isn't fully open.
- Sliding parts need lubrication.

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

- O-rings on bolt or striker are nicked or torn - install new ones.
- Lube is sticky (including buildup) - clean gun and apply AIRLUBE™.
- Cup seal is loose on valve pin - retighten it.
- There is liquid CO2 in the gun - is your bottle over-filled?
- Air bottle valve isn't fully open - screw bottle further (don't force it); replace bottle.
- Your paintballs are not round or they vary in diameter - get better paint.
- Barrel is dirty (residue can be very hard to see) - clean with swab.
- Striker spring is bent or binding - replace it.

Accuracy is degraded:

- Paint residue or other moisture somewhere in gun - clean.
- Paintball gelatin in the barrel - clean.
- Barrel is scratched or bent - replace.

Excessive paintball breakage:

- Too much recock force.
- Paintball gelatin in barrel - clean with swab.
- Defective paintballs - get better paint.
- Defective barrel - polish or replace barrel.
- Burr on end of bolt - polish it off.

Paintball chopped in chamber by bolt:

- Bad paintballs - get better paint.
- (during an isolated shot) Ball retention spring is mis-adjusted - adjust.
- (during rapid firing) Firing rate exceeded rate at which paintballs entered gun - check that feed path is clear OR replace paintball loader with one which will feed paintballs into gun faster.
- Only a few paintballs left in feed system - reload.

TROUBLESHOOTING

Bolt is Jammed:

- Paintball chip beside bolt - field strip.

Two balls fire on a single shot:

- Gun was uncocked with a ball in the chamber - unload chamber first.
- Ball retention spring is mis-adjusted - adjust.

Cocking assembly pin won't insert:

- Bolt and striker are not lined up.

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:

- Bottle valve releases gas during more than last 1/2 turn of bottle installation, stressing O-ring - try a different bottle.
- O-ring and bottle threads are dry - lube them lightly.

Bottle won't release air:

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

Air is leaking:

- Air bottle is very loose - Remove it, then replace it and tighten until it is snug.
- Cup seal is forced to the side by the cup seal guide.

- Bottle O-ring; cup seal; reservoir plug O-ring; or valve body O-ring is defective or displaced by dirt - remove dirt or replace bad part.
- Forward lip of valve body is rough - replace.

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

- Air source low - refill tank.
- Trigger assembly may be defective—contact airmsmith or ACI for service.

Gun won't fire a paintball, but recocks:

- Bolt in upside down

Air is leaking down the barrel:

- Gun is not cocked - cock it.
- Low air pressure - refill air supply.
- Cup seal defective - inspect and replace.

Air is leaking out the front reservoir plug:

- Reservoir plug O-ring defective - replace.
- Valve body was disturbed - call your dealer or ACI for possible service.
- Chamber wall scratched - call your dealer or ACI for possible service.

WARNING

Never attempt to perform maintenance or make repairs on your gun until you have removed the air source.

PARTS LIST

Barrel	1	Bottomline Cap Screw Short	27	Nylon Pin	54
Barrel Plug	2	Bottomline NPT Plug	28	Striker Spring Delrin Bearing	55
Barrel Plug O-ring	3	45 Grip Bottomline Square Nut	29	Striker Spring	56
Powerfeed Plug	4	45 Grip Screw	30	Striker Spring Guide	57
Powerfeed O-ring	5	45 Grip Screw Stand-off	31	Striker	58
Bolt O-ring	6	45 Type Wrap Around Grip	32	Striker O-ring	59
Bolt	7	Trigger Housing	33	Bolt Plug Buffer	60
Bolt Body Lock Pin	8	Front Frame Screw	34	Bolt Plug	61
Cup Seal Guide Star Washer	9	Frame Lock Washer	35	Bolt Plug O-ring	62
Cup Seal	10	Trigger Shoe	36	Cocking Knob	63
Valve Stem	11	Trigger Shoe Set Screw	37	Flathead Screw	64
Valve Body	12	45 Trigger	38	Sight Rail	65
Valve Body Rear O-ring	13	Trigger Spring	39	Cocking Link	66
Valve Body Front O-ring	14	Trigger Pin	40	Cocking Tab Spring	67
Valve Spring	15	Trigger Shim	41	Cocking Spring Set Screw	68
Front Reservoir Plug	16	Safety	42	Sight Rail Cap Screws	69
Reservoir Plug O-ring	17	Safety Ball	43	Ball Retaining Plate	70
Vertical Adapter	18	Safety Spring	44	Ball Retaining Spring	71
Vertical Adapter O-ring	19	Safety Set Screw	45	Side Plate Screw	72
High Torque Bolt	20	Sear Pin	46	Valve Stop Pin	73
Gun To Hose Adapter O-ring	21	45 Sear	47	Receiver Main Body	74
Gun To Hose Adapter	22	Sear Spring Pin	48	Connecting Pin	75
9.5" Stainless Steel Hose With JIC Fitting	23	Sear Spring	49	Barrel O-ring	76
90° Nickel Plated Elbow	24	Rear Frame Screw	50		
Custom Two Hole Bottomline	25	Striker Plug	51		
Bottomline Cap Screw Long	26	Striker Plug O-ring	52		
		Velocity Adjustment Set Screw	53		

WARRANTY INFORMATION

Limited Warranty Statement

Air Concepts Industries, Inc., warrants that your F4 Illustrator is free from defects in materials and workmanship for a period of one year from the original date of purchase by the initial owner. (For guns used for rental, the warranty is limited to three months.) During this period, any defective parts will be repaired or replaced with new, or at the option of Air Concepts Industries, Inc., refurbished parts. All parts replaced under this warranty become the property of Air Concepts Industries, 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 909-350-9176. Call before shipping your gun.

Exclusion and Limitations

This warranty does not extend to the cup seal or O-rings, nor to any parts, such as air bottles or adapters, which are not manufactured by Air Concepts Industries, Inc., nor to any parts made defective by accident, misuse, abuse, or modification.

Except as expressly stated herein, Air Concepts Industries, 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 F4 was designed. This warranty gives you specific legal rights. You may have other rights which vary from state to state.

Air Concepts Industries, Inc., shall not be liable for any incidental or consequential damages arising from the use of the F4 Illustrator or from the breach of the warranty set forth herein.

THE SPORT OF PAINTBALL

The sport of paintball involves 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 F4 Illustrator 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 F4 Illustrator to the dealer. If you have difficulty returning it, please contact us at 909-350-9716.

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